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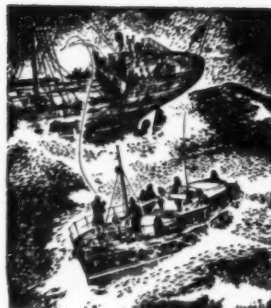
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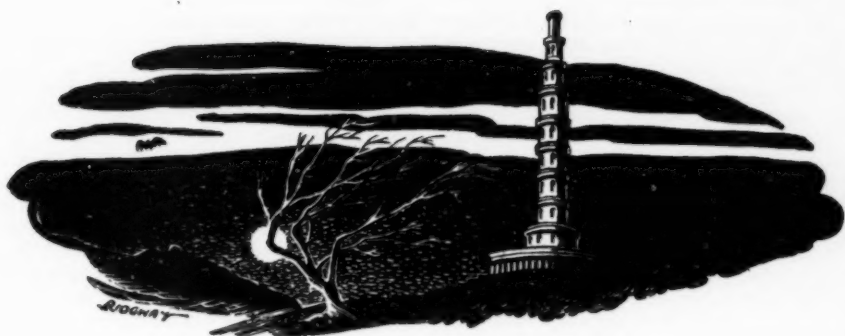
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Angram Folly

PHYLLIS BENTLEY

(From the author's forthcoming *Panorama*)

I

THE tower had a strange story, I found.

As a newcomer to the town I was at first greatly struck by the architectural beauty of the tower, by something excessive, romantic, passionate even, in its soaring shape, astonishing amidst the prosaic industrial structures by which it was surrounded. A long slender octagonal shaft nearly three hundred feet high was crowned by charming pillared galleries culminating in an airy pinnacle of lacy stonework. The tower stood on the slope of a bleak hillside—but then, everything in Hudley stands on the slope of a bleak hillside. I inquired the tower's name and purpose. The ordinary Hudley citizen, shrugging his ignorance of the latter, mumbled that it was called just *The Folly* or *The Tower*.

'Angram Folly is its real name, I reckon, if you want to be particular,' said one, better informed, at length. 'It's a mill chimney, you know.'

'What!' I exclaimed.

'Aye—there's a brick mill chimney inside it.

Between the brick and the stone there's a flight of steps. That's why it's so open at the top, you see, to let the smoke out.'

'But has it ever been used as a chimney?'

'I should think not.'

'But who made it? Why?'

'Nay—you must ask the history chaps. There was some sort of quarrel—some sort of feud. It ruined the man who built it. Angram was his name. See that housing estate over there?' He pointed to a mass of red brick, arranged in concentric circles on a reasonably enlightened scheme, which lay on a neighbouring slope. 'That's Ashbrow. It used to be a large estate. The Angrams lived there.'

'But there's quite a deep cleft between the Ashbrow hillside and this where the Folly stands.'

'Aye, there's a clough. That's what it's called in these parts. Clough Edge Lane runs down this slope, and that's Clough Edge dyeworks, and amongst those trees there you can see the chimneys of Clough Edge House. The

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Folly was something to do with a quarrel between the Clough Edge folk and the Angrams of Ashbrow, but what it was all about, don't ask me. An Angram built the Folly, that's all I know.'

'It's very beautiful,' I said, looking up at the airy graceful structure, which held its own with an effect of delicate pride against the strong West Riding winds tearing round it.

'Think so? We call it The Folly hereabouts. You must ask the history chaps if you want to know any more.'

I took his advice, and discovered by degrees the Folly's strange and tragic story.

IN the 1870's John Angram lived at Ashbrow, which had come to him on his marriage.

His wife's family had a history very typical of the textile West Riding. In the 17th century they were yeomen clothiers, weaving cloth by hand in their own home; in the 18th century they employed weavers who wove by hand in their own cottages, the firm supplying the wool and marketing the cloth. The family flourished, and in the 18th century they pulled down the old homestead with its mullioned windows and built a strong solid 18th-century house with two curving wings, employing a celebrated architect from York for the purpose and moving the site of the house away from the buildings where they carried on their trade. Then steam came, and they built a mill in the valley below, and the money rolled in faster to Ashbrow. Now that their place of business was out of sight they became gentry; the daughters had governesses and the sons were sent to Oxford, where they learned to speak Southern English and to despise trade. John Angram was their manager at Valley Mills, and eventually he married the Ashbrow sister and bought her brothers out. Some people said the valuation was his own and not the Ashbrows', but they seemed content enough, and one by one migrated to the South.

Thenceforward John Angram was a thoroughly 'warm' man. His wife had a carriage for her own use, while when Angram went down to his mill in the valley or over the hill into Hudley town he rode in a brougham drawn by two glossy mettlesome horses, beside which ran always two fine large Dalmatian hounds. The house was full of every luxury a rich Victorian manufacturer could buy—crystal chandeliers, chenille fringe, thick

bright carpets, Crown Derby china, massive mahogany, with five servants to clean and polish them. Unfortunately Mrs Angram was delicate; her health had been upset by the birth of her eldest child, James. After losing two or three little girls at birth or weaning she died herself in producing another boy, a fair, mild little fellow, Edmund by name. John Angram did not marry again, though many spinsters of the neighbourhood tried to draw him to the altar; he called in a sister, Sarah—quiet and colourless she must have been, for she seems to have had no influence on the Angrams' action—to house-keep for him and bring up his two boys.

Now John Angram was a tyrant. Not very tall, but broad and burly, with a thick chest and strong arms, he had a high colour, a big mouth, a strong fleshy nose, a fine full black whisker, and a large dominating brown eye. His portrait and that of his eldest son are amongst those of local worthies in the Hudley museum. He had a strong voice, he knew his own mind immediately on every conceivable subject and was immediately sure that he was right about it, he spoke habitually the language of robust command and stood no nonsense from anybody. Entirely ignorant of history, literature, music and art, he was skilled in the manufacture of cloth and knew to a nicety how to make money out of it. When he was vexed or crossed he uttered his vexation loudly, even thunderously; on the other hand, he felt the usual Yorkshire diffidence about expressing commendation or affection, so his words of praise or love were rare, and spoken with an effect of peevish reluctance. 'Be off with you!' 'No more of that!', 'Now then, no silly work here!', and 'Mark my words!' were favourite phrases. 'Do this', 'Do that', 'Where are you going?', 'Where have you been?', 'What's the meaning of this?', 'You're late, James', 'You're not a donkey, Edmund—at least I hope not, so don't hang your head, boy', 'Don't argue, James', 'What fools women are!', 'It's a pity if a man can't have a decent meal in his own house', 'That's all silly nonsense, James', 'Well, Edmund, haven't you a tongue in your head?'—these, delivered in loud hectoring tones, rang continually about the rooms of Ashbrow and the Valley Mills. John Angram domineered as he breathed, without thought and without cessation.

Tyranny of this kind produces different effects on different natures. John Angram's sons had very different natures. In one, the

father's dominance produced compliance; in the other, defiance. Edmund, so much the youngest inhabitant of Ashbrow, seven years younger even than James, and never knowing a mother's care, was timid, nervous, and uncertain. When his father shouted at him, his large grey eyes opened wide with fear, his fair face flushed, his slight body trembled; he hurried to obey, to appease, to fall in with every demand his father made on him. James on the other hand—but we must begin another paragraph for James; he is the tragic figure of the story.

James had his father's dark hair and his father's strong will, but in other respects I think he must have resembled his mother—of whom I have been unable to discover any portrait. James was tall and extremely personable; more slenderly built than his father, and bearing a strikingly handsome, even noble, face. Brilliant and piercing dark-grey eyes, a wide sensitive mouth, an aquiline nose, a broad and high forehead are all animated, in his portrait, by an expression of great benevolence and, so to say, integrity; it is the face of a man who might become a fanatic, but never in an ignoble cause. James had a good mind and an easy fluent speech, much less local in accent and vocabulary than his father's. Though by no means unskilled in textile matters, he cared also for the arts, played the violin in a serious if unpretentious style, knew enough of architecture to perceive the dignity of Ashbrow and executed a quite effective drawing of it, expressed a wish to attend a university, which was refused by his father, and read a little history and moral philosophy in his spare time.

John Angram was generous in money matters to his household. Aunt Sarah had her carriage and her silk dresses; Edmund's supply of toys was lavish and he rode a pony. James was handsomely clothed, kept a spirited riding horse, entertained his friends with proper frequency, and had plentiful pocket-money with which to indulge his hobbies. But from time to time the father crashed into his children's activities and trampled them down, forbidding this or that offhand; he called this 'keeping an eye on the lads—must know what they are up to, eh?' Edmund cowered and submitted, but James with flashing eyes drew himself erect and argued his case. It was not easy to shout James down, his father found, for the more he shouted, the more James argued. It seemed to be a point

of pride with the lad to keep his guns answering as long as his father fired. John could not help feeling half-proud of James's eloquence and the examples which he quoted from old books, though of course all that sort of thing was silly work, nonsense, quite impractical and unsuited to the son of a rich manufacturer in the textile trade. But it made him uneasy to find that the boy did not desist from the practices his father forbade. John Angram raged against the squeaking violin, but James continued to play openly in the drawing-room; he raged against the books, but the parcels from the Hudley bookseller continued to arrive; he raged against Elizabeth Greenup, but James continued to hang round the girl.

THE Greenups lived across the clough in Clough Edge House and drew their living from Clough Edge Mills. Mrs Greenup was an old friend of the late Mrs Angram. When William Greenup was alive, John Angram and he did business together, Greenup dyeing much of John Angram's cloth. Angram thought Greenup an insignificant unimportant fellow, on the wrong side in politics and not by any stretch to be called a 'warm' man, but he had a large contemptuous friendliness for the dyer on his wife's account, and sent his widow presents occasionally—game from his shooting-lodge on the moors, grapes from his fine glass at Ashbrow. When his sons were young he quite liked them to visit Clough Edge House—it kept them out of harm's way, he thought, for few establishments could have been more innocent than Mrs Greenup's. But for James to think of marrying Elizabeth Greenup was ridiculous. She could do nothing to help in establishing the Angrams firmly in the top stratum of Hudley society—why, the girl wouldn't have a penny to her name. On her husband's death Mrs Greenup had put a manager into Clough Edge Mills.

'Mark my words, James,' said John Angram not once but a hundred times, 'yon manager will manage the Greenups out of their mill—managers always do.' (James could never decide whether or no his father was conscious of his own example in this respect, but certainly the continual decrease in the Greenups' income seemed to corroborate him.) And besides, Elizabeth Greenup was as insignificant in person, John Angram thought, as her insignificant father. 'Nowt to look at,' Angram dismissed her briefly.

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He was wrong. Elizabeth's fine hazel eyes and clear pure face could never be insignificant; they carried a beauty of line and spirit. She was tall, too, and held herself well, and her smooth bands of light-brown hair were thick and springing. But John Angram preferred a more obvious, more coloured beauty. 'If it had been Nessie, now,' he grunted, 'I could have understood it.'

Esther Greenup's name was so unsuited to her careless, wilful, playful charm that everyone called her Nessie. She was small, with a delicious, a really perfect, figure. Her complexion was milk and roses, her eyes a clear bright blue. Her hair was a glorious golden, rippling in thick silky cascades as far as her waist; when the sun caught them, these wonderful golden masses seemed really to glitter, to sparkle. The sun often caught them, for Mrs Greenup liked to see her darling's beauty displayed and allowed Nessie's flowing tresses to remain unbound longer than some people thought seemly. Even when the passing years at last made it necessary for Nessie to confine her hair in a great knot, the pins were apt to slip, the knot to untwist, and the gold pall showered about her arms.

From their earliest days the Greenups' house was a home to the Angram boys. The Greenups' house was always full of young people, who were always dancing or singing or playing, or roasting chestnuts and telling stories round the fire, or playing lawn tennis on the rather weedy lawn, or setting out on skating parties to the river valley below. (John Angram flooded a field each year from his mill dam for the benefit of the youngsters of the neighbourhood, for he was not surly. He liked to see young people enjoy themselves, provided, of course, that they did it in his way.)

When Edmund was a baby and James a little boy, Elizabeth would hang a white cloth in her bedroom window to tell James that there was company at Clough Edge House and he was welcome to join them. As she grew older, this custom was dropped, and she blushed deeply if she were reminded of it. When Edmund was a little boy and James was in his teens, Edmund and Nessie sat side by side on the huge steel fender in the Greenups' kitchen, contentedly munching currant tea-cake, their fair heads close, while James, come to fetch Edmund home, beamed upon them and thanked Elizabeth eloquently for her kindness to his little brother. James loved

Edmund dearly—as dearly as Elizabeth loved Nessie.

Mrs Greenup wore a lace cap above abundant long corkscrew curls of an agreeable light-grey, which had formerly, it was understood, been as brilliant a blonde as Nessie's. There was once a question whether Mrs Greenup should not dress her hair in a more contemporary fashion, and she appeared one morning with the curls suppressed; but Elizabeth's lip quivered at the sight and Nessie burst into tears, Mrs Greenup wept too, and the curls were immediately resumed amid general acclamation.

The Greenups were, you see, a very devoted and loving family. The air of Clough Edge House accordingly radiated love and devotion; from the moment James opened the door of the shabby porch he felt relieved, at ease, content. At Ashbrow and Valley Mills somewhat aloof and reserved, in Clough Edge House James rolled up carpets for dancing, pranced joyously through the polka, sang 'Polly Wolly Doodle All the Day,' laughed and joked and fetched and carried with the best. When he was alone with Elizabeth he became serious and ardent, but remained content. The return home by the steep rugged little path from Clough Edge House to Ashbrow was for James a return from heaven to hell—a heaven which grew daily brighter with his growing love for Elizabeth, a hell which grew daily darker with the increasing tyranny of John.

By the time James was twenty-two, Miss Sarah Angram and little Edmund dreaded nothing so much as the almost daily clash between John Angram and his eldest son. The family meals were ruined by these rows or the fear of them. John Angram shouted till his face grew crimson and his eyes bloodshot, he struck his plump hairy fist heavily on the table, he called his son a mutinous young whelp who needed to be taught where his duty lay. 'And by God I'll teach it you!' shouted John.

His son, white with rage, made a swift flowing reply to his father's every sentence, and was not to be halted in his argument merely because his father had begun to speak again. Afterwards Miss Sarah and Edmund wept together, and voiced their fears that one day the quarrel would go too far and John Angram would turn his son out of doors—or, what was more likely in Edmund's opinion, James, unbearably insulted, would himself leave home.

This presently happened, though the subject

of the final quarrel was not Elizabeth Greenup, as they had expected, but—smoke. Yes, smoke.

AS far as I could discover, the quarrel came about like this. One day in the mill there arose a question as to whether a certain piece of cloth should leave for Bradford on a certain wagon, or wait till the next delivery. John Angram was out on business, so the matter was brought to James. He hesitated; there had been something wrong with this piece which was now alleged to be righted. James believed indeed it was righted, but his father might think otherwise if the piece were sent without being passed by him. Accordingly James decided to delay the piece. Unluckily this was the wrong decision; and when his father returned it caused a violent storm. The Bradford merchant was expecting the piece that day. John Angram had promised the piece that day. The transport of those times was a heavy waggon drawn by two horses, which took many hours to traverse the hilly miles between Ashbrow and Bradford, so that the piece could not now reach Bradford in time to implement the manufacturer's promise.

'I'm sorry, Father,' said James stiffly. 'I acted for the best. I did not like to despatch the piece without your *imprimatur*.'

'Good God!' roared John Angram, his temper not improved by this word which he did not understand. 'Am I surrounded by fools? Are you still in swaddling clothes? You're a fine chap, wanting to be married, when you can't take the simplest decision without me at your side! When I was your age I was managing the whole of this mill.'

'Father,' began James, pale with anger.

'That's enough—I don't want to hear any more. Take this list, see, and check the numbers with those in the Greenup ledgers. That sort of baby work is about all you're fit for.'

Accordingly when next day a decision of another kind was required James took it in his father's absence without waiting to consult him.

It was during these years of the 19th century that the consequences of the smoke poured out from the mill chimneys began first to be perceived, first to awaken the alarm which later deepened into consternation. It was now, beneath the ever-increasing volume of thick

black fumes, that the trees of the West Riding began to stunt their growth, the grass to perish, the flowers to wilt, while any hardy vegetation which survived, together with all stone, became covered with a black film of soot, so that the whole landscape took on a hue more sombre than was natural. To combat this growing evil and preserve the greenness of England's pleasant land some measures had been taken in Parliament; they had not, however, been very much observed. Now some neighbouring manufacturers of a public-spirited kind proposed to link themselves into a local Smoke Prevention Association, and one of their number called upon John Angram to secure his support.

The matter was precisely of the kind over which James Angram could become enthusiastic; the effect of soot on the lungs of the people, the growth of ugliness in the landscape and ill-health among the inhabitants, made him fiercely eloquent; the distinction between 'black' smoke and 'grey' smoke, the proper legal forms to be observed in smoke prosecutions, appealed to his active intelligence, always seeking more to learn than his environment offered him, and which moreover had something of the theoretic in its composition. He absorbed the details of the scheme with eagerness, his grey eyes flashing, and gave in the adherence of Messrs Angram without a pause. The next item was the amount of subscription to be promised. Here James hesitated a moment, and would have referred the matter to his father if it had not been for the scolding of the day before. But not wishing to be called a fool, a babe in arms, a useless incompetent again, he overcame his momentary reluctance and promised a sum equal to the highest on his caller's list.

'Oh, by the way, Father,' he began as the two Angrams mounted the brougham standing at the mill door that evening, 'I've made the firm a member of this new Smoke Prevention Association.'

He was interrupted by a roar like that of an angry bull. 'I won't have anyone interfering in my business!' shouted his father, clambering heavily in. 'I'll put out what smoke I like! I won't have any tuppenny-ha'penny inspector watching my mill chimney! What right had you to make the firm a member of anything without consulting me?'

'You said just the reverse yesterday, sir,' said James.

'I did nothing of the kind.'

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'Your attitude to the smoke nuisance is thoroughly illiberal and I despise it.'

'Who wants to be anything but illiberal? If you'd keep away from those damned Greenups your politics would be sound.'

'Please don't insult my friends,' said James coldly. 'I have a deep respect and affection for the Greenups.'

'What have the Greenups to do with smoke prevention? Keep to the point.'

'It was you who—'

'You can just sit down to-morrow and write and withdraw from membership.'

'That's impossible, Father,' said James, revolted. 'I pledged my word—it would be dishonourable to withdraw.'

'Are you telling me I'm proposing something dishonourable?' shouted John Angram, thrusting his face into his son's.

'Yes! And it wouldn't be the first time!' cried James.

'What!'

As the carriage wound its way up the steep zig-zagging road towards Ashbrow the quarrel raged. The coachman was alarmed by its fury, whipped up his horses to get the two men swiftly home so that they might part the sooner, but the gradient was too severe for speed, and the quarrel ran its course. Just as the carriage turned between the tall iron gates of Ashbrow the near door was thrown violently open and James sprang out. In the soft light of the spring evening he was observed to be livid with rage. He slammed the carriage-door violently and ran off at a breakneck pace up the hill. One of the Dalmatians halted for a moment, paw in air, to gaze after him. A furious shout burst from the carriage. With a whine, lowering its muzzle, the hound crept after the carriage through the gates.

JAMES never entered Ashbrow or Valley Mills again.

It is said that John Angram's astonishment was pitiable when his son's determination never to return became clear to him. At first too madly angry with his son to wish to see him, then not ill-pleased that the lad should stay out of the sight of his justly incensed parent, it was some days before he learned, from his trembling sister, the fact that James had not been home at all since the night of the quarrel. 'Nonsense! Silly work! The boy's daft!' exclaimed John Angram. 'Tell him not to be a fool—tell him to come

to the mill as usual to-morrow morning.' Miss Sarah pointed out in shaking tones that she did not know where to find James to give him the message. John Angram was astounded. 'Do you know where he is, Edmund?' he demanded, drawing his bushy black eyebrows together to frown at the boy.

'No, Father,' replied Edmund truthfully, trembling beneath his father's glance.

'He'll be at the Greenups', very like. Tell him to come home and not be a fool.'

'He isn't at the Greenups', Father,' said Edmund timidly.

'If he isn't, he will be,' said John Angram, grumbling. 'Leave a message for him, Sarah! You'd best go over yourself and see Mrs Greenup. She can give him a message. Tell him to come home.' He fixed his eyes on the joint of beef he was carving and added in a lower, half-peevish, half-kindly tone: 'He needn't be afraid.'

Miss Sarah knew her nephew too well to leave a message for him in these terms, but she drove round to Clough Edge House and conveyed to Mrs Greenup that James's escapade would be forgotten and the young man received with kindness by his father if only he would return home at once. Mrs Greenup fully agreed that James should return—it was not respectable for a young man to leave home in that way—but doubted whether he could be prevailed upon to see his duty. He was very wilful, and his nature was very different from his father's.

'Perhaps Elizabeth would use her influence?' murmured Miss Sarah.

Mrs Greenup, who though mild was not meek, raised her eyebrows somewhat sharply at this, but said that Miss Angram could mention the matter to Elizabeth if she chose.

Elizabeth came in bringing wine and cake for the visitor, and Miss Sarah inquired hesitantly whether Elizabeth did not think that James should go home.

'James will do what he thinks right, I am sure,' said Elizabeth, proudly raising her head.

'I shall never return—my father's conduct was too odious,' said James sternly that evening when Mrs Greenup kindly tried her hand at persuasion. 'He wished me to go back on my pledged word.'

'You are quite, quite right, James,' said Elizabeth when they were alone, gazing admiringly at him. 'Only how will you live, my darling?'

This was a problem of growing concern to

ANGRAM FOLLY

A James, for he found that no manufacturer in or about Hudley would employ him. Some refused from fear of John Angram, some from a kindly feeling for James—the sooner the boy found himself without resources the sooner he would go home, they thought, for of course the story of the quarrel was known all over the West Riding. Some added admonitions and advice to their refusals, and were offended when James received them haughtily. Mrs Greenup suggested employing James in Clough Edge Mills, but the manager flatly refused to do so. If he did, John Angram would withdraw his custom, and frankly, he said, the business could not stand it. Clearly James would either have to leave the district or accept a very subordinate position.

It was then that the strange distortion of his proud nature caused by his continual defiant response to his father's bullying began first to reveal itself. In an interview with Mrs Greenup he formally renounced all claim to Elizabeth's hand, but he would not leave Hudley or cease to frequent Clough Edge House. Why should he be driven from the sight of Elizabeth by his father? He took a job or two as clerk and shop assistant, but soon lost them, unable to adapt himself to what he felt as a meaner sphere. Suddenly he dropped from the Clough Edge circle altogether, though friends reported that he was still to be seen about the town. Elizabeth did not droop or weep, but she grew thin, pale, tense; her eyes seemed larger, her cheekbones sharper, as she suffered. Where was James?

He had, in fact, in angry pride descended to manual labour. Some say he wielded a pick on the new road which was winding down into the valley from Hudley past Ashbrow; others that he became a labourer in a local quarry. Both may be true. If one story has to be chosen, I think the stonemason the more probable. The millstone grit of the Pennines is justly celebrated, and at that time was in great demand for building and paving—I have seen the Hudley stamp on London pavements. James's later life reveals some knowledge and affection for the properties of this stone. Whichever story is the right one, James in corduroys tied at the knees, with shirt-sleeves turned up, swinging either pick or hammer, was not an image which he would choose to present to his beloved, though he might well take a bitter pleasure in forcing it upon his father. So he stayed away from Clough Edge

House. But Elizabeth discovered his secret, partly by questioning, partly by chance, and sent their old servant, Hannah, to visit the quarry office and ascertain his address. Then she swept off her mother with her to James's wretched lodgings at the bottom end of the town.

Imagine the scene! Mrs Greenup distressed, alarmed, confused in sympathies between Elizabeth's blighted prospects and the unhappy situation of her old friend's son. Elizabeth firm and ardent, declaring that she considered herself, would always consider herself, engaged to James. James at first angry and scornful, proudly rejecting all sympathy and offers of help, then suddenly with quivering lip seizing Elizabeth in his arms, looking very wretched and very young. It all ended, of course, in Mrs Greenup, frightened of her manager, but more frightened for her daughter's happiness, ordering the manager to employ James at Clough Edge Mill.

James threw himself with ardour into this work where he might serve Elizabeth. Within a year he suspected the manager of wholesale defalcation, within another he caught him in the act. Since the thefts concerned the Greenups, not himself, James's anger knew no bounds; he expressed himself with such fierce menace that the terrified manager disgorged some of the stolen funds and made himself scarce, fleeing from Hudley. So James was left in charge of Clough Edge Mills. He was conscientious, accurate, honest, and energetic; he had the blood of generations of clothiers in his veins and had learned much of the textile trade from his father. The Clough Edge dyeworks prospered—at first in a mild and tentative, later in a solid and highly satisfactory, manner.

Presently James and Elizabeth married, and made their home at Clough Edge House.

JAMES and Elizabeth did wrong, I think, not to invite old John Angram to the wedding, and still more wrong to return his wedding-present (a handsome canteen of cutlery, ivory and Sheffield steel) unopened. I think it likely that it was on their very wedding-day that John Angram conceived his plan of revenge. I imagine him pacing up and down the Ashbrow drawing-room, looking first across the clough towards the Greenups' house and mill, then at his watch, feeling sore all over from his son's contemptuous rejection

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of his gift. 'Well, they're married now. I wish he'd never seen those Greenups. It's all their fault. I wish their blasted house and mill were out of sight. I wish that Smoke Prevention Association had choked itself before it came to Angram's.' Then the sudden start, the loud guffaw, the slap on the broadcloth round the fleshy thigh. 'Smoke Prevention! We'll see, Master James!'

Partly in jest, I feel sure, partly in revenge—but I think it was the comic irony of the thing which pleased him most—John Angram set the Smoke Prevention Association's inspector to watch the Clough Edge chimney.

Of course the smoke emitted was often black, not grey; of course it came out, during certain portions of the day, at frequent intervals. Nobody at that time had any real idea how to diminish smoke output—the remedy, like the evil, was in its infancy. The inspector reported flagrant violations, the Association laid an information, and the police prosecuted. Bewildered and at a disadvantage from his habitual truthfulness, James appeared in the West Riding Court and was convicted. The fine was small, a few pounds only, but James, striding homewards through air dim with the unrestricted smoke of a hundred tall chimneys, felt his heart burn from the injustice of his solitary punishment.

Six months later he was prosecuted and fined again, and six months afterwards, again.

As the Court proceedings were of course reported in the local papers, James was thus made to appear a hardened offender against his country's laws, a man who blackened his fellow-townsmen's breath for the sake of a little extra power. The honourable, well-meaning James writhed beneath this public imputation and promised the magistrates to build a taller, better-sited chimney. It was true that the steep slope of the hill behind Clough Edge Mills sheltered the smoke, flattened it, kept it from dispersing. James, panting with eagerness to clear himself from the accusation of bad citizenship, offered to plant a chimney on the top of the hill and lead the smoke underground to it. This seemed an acceptable compromise to the magistrates.

James hurried to put it into operation. He engaged an architect, and the two men examined the hillside together. The land belonging to Clough Edge House offered one particularly suitable site for the chimney, but to this the architect demurred.

'I don't see your objection,' said James.

The architect, a local man whom James had met on work at Valley Mills, coloured and hemmed a little. 'If you put a mill chimney there, your father will say you do it from revenge,' he said at last.

'But why?' asked James, astonished.

'It will spoil your father's view—it will be clearly visible from all his windows.'

James frowned, perplexed. To vex his father, or any enemy, deliberately was quite beneath his noble spirit, but no other site for the chimney was equally good.

'But perhaps you intend it as revenge?' suggested the architect, mistaking his silence. 'Or as a threat? A way of preventing any further prosecutions?'

The astonished James turned on him angrily. 'But my father has nothing to do with the prosecutions?'

The architect, equally astonished by James's innocence, explained the nature of the evidence against Clough Edge Mills.

James staggered as he left him. His pure heart and upright mind could not endure the knowledge of his father's chicanery. The world reeled about him. He flung himself home, and refusing the meal prepared for him sat down alone in his study. For a time he brooded fiercely, then drawing pen and paper towards him began to write. He wrote a fiery, scathing little pamphlet telling the truth about the smoke prosecutions. The phrases poured from his pen. He called Elizabeth to come and hear them. 'I shall print a few hundred copies,' said James carelessly.

Though impressed by his eloquence, Elizabeth was deeply troubled. Were there not laws to prevent libels from being uttered?

'These are not libels,' said James, his dark eyes flashing. 'These are the facts.'

'But if your father chooses to say that they are libels?'

'I have a right to state my case. Come, Elizabeth,' said James strongly, holding out his hand to her, 'you would not have me submit to justice unmoved. You would not have me hold my tongue like a coward.'

'No—no,' said Elizabeth. 'But neither would I have you stoop to revenge.'

'Revenge?'

'The chimney, James,' urged Elizabeth timidly. 'Could it not be moved round the fold of the hill? Out of sight from Ashbrow?'

James laughed. He laughed loud and long, throwing himself backwards and forwards in the ecstasy of his mirth. Elizabeth felt afraid.

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His laughter was strange, his eyes had a steely glitter.

'James!' she said at last reprovingly.

Her husband's laughter ceased at once, he sat erect and took her hand again, holding it strongly. 'My chimney will spoil no view—my chimney will be no eyesore,' he told her. 'Nobody shall say I built it to vex my father.'

'James! Husband! We have been so happy,' murmured Elizabeth. 'Move the chimney, and do not print the pamphlet.'

James frowned. 'You speak of things be-

yond your understanding, Elizabeth.'

'If you print the pamphlet your father will never forgive you.'

'I don't wish for his forgiveness! What has he to forgive?'

'The chimney—'

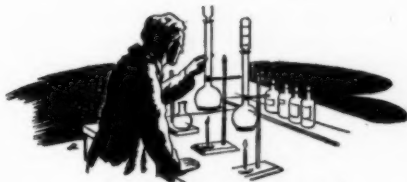
'The chimney will be an ornament,' said James, that strange glitter in his eyes again.

'I shall see the architect to-morrow.'

Well, that was how it came about—Angram Folly.

(To be concluded)

November First Story: *The Ghost Who Was Nearly a Champion*,
a boxing story by Louis Golding.



Health Trust for Animals

A. J. FORREST

WITHOUT healthy breeds of livestock and domestic pets, free from disease and relatively immunised as pest-carriers, no nation can attain, in its human population, a vigorous health-standard. It is Britain's pride, a well-founded and legitimate pride, that her stock, whether racing bloodstock or dairy-cattle, pedigree shire-horses or close-woolled sheep, have long held and preserved a world lead for their refinement of breeding, excellence of performance, and adaptability to varying demands under varied climes.

Yet—and it will come as a shock to many—what scientists recognise as 'preventable animal disease' is to-day costing Britain not less than £50,000,000 a year! The figure may seem far-stretched, but a few individual items quickly confirm it. Cattle diseases, particularly foot-and-mouth and mastitis, are depriving us of 200,000,000 gallons of milk

annually. Warble-fly exacts a massacre of cattle hides, actually rendering one in every four worthless. We lose, at the same time, 6,000,000 full year's rations of meat and over 1500 tons of liver. And our farming community, hard hit by such stern exactments, is nobly struggling to give the nation 50 per cent of its food requirements by 1952.

In fact, the £50,000,000 minimum loss excludes any loss whatever to horses. Here again a single item, foal disease in relation to racing bloodstock, provokes sorry thought. Out of every 100 thoroughbred foals born, 59 only are reaching maturity. Disease alone does not account for this serious mortality-rate, but it is a potent destroyer. Then, out of every 100 mares served, 25 prove to be barren, 2 suffer from abortions, 2 die, and 1 foal is stillborn. Through infertility and foal diseases, owners of British thorough-

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breeds have £1,000,000 extracted from their pockets yearly.

The Government, highly conscious of its duty to raise the nation's self-production capacity, encourages research through its own well-organised laboratories directed by the Agricultural Research Council. But the state alone, despite its power and financial resources, cannot furnish complete answers to the enormous diversity of problems involved. From the research viewpoint, it is desirable that external, non-state-controlled bodies, properly equipped with the latest scientific aids, should have a free hand to investigate thoroughly whatever issues appear of outstanding urgency either on a short-term or long-term basis. Then, scientists working for free organisations readily stimulate those under state control and the other way about. Through friendly, and indeed co-operative, rivalry, research assumes a sharper edge on both sides.

Hence, as a nation of animal lovers, relying on sound livestock for our very survival, we can but acknowledge with gratitude our increasing indebtedness to so completely an independent and valuable institution as the Animal Health Trust. Formed in 1942, and enjoying the state's blessing, but not a penny from its coffers, this organisation, of which the Duke of Norfolk is President, set out to form special research stations where highly-qualified veterinary research workers could grapple, undisturbed, with diseases prevalent in bloodstock, farm-stock, poultry, cats, and dogs. It aims not merely at reducing our terrible wastage bill, but also at rendering life happier and more vigorous for greater numbers of animals in these isles, so that, for example, the 'bounding steed we pompously bestride' can 'share with his lord all pleasures and all pride.'

Since its emergence, the Trust has formed separate, independent stations for equine research, canine research, poultry research, and farm livestock research. With Dr W. R. Wooldridge, M.Sc., as Scientific Director, and Sir Cleveland Fyfe, C.B.E., as Organising Secretary, the Trust now claims the services of many distinguished veterinary specialists, such as Professor W. C. Miller, a far-honoured authority on equine diseases, and Dr R. F. Gordon, deservedly eminent for many original studies of poultry troubles.

However, as a voluntary organisation, the Trust's advantage of freedom from outside

control is slightly counterbalanced by a fluctuating and indeed inadequate income derived from public subscriptions. It needs a minimum income of £200,000 a year if the great tasks set down on its experimental schedules are to be carried forward to their conclusion. All interested quarters, sporting, agricultural, and commercial, must, therefore, give it fair backing. Farmers especially, not in Britain only, stand to gain immeasurable benefit from its researches.

COLONEL GEORGE BARNETT, O.B.E., M.C., kindly showed me over the Equine Research Station at Newmarket, of which he, a retired officer of the Royal Army Veterinary Corps, is Secretary. At once an enigma presented itself. Although Britain has long been recognised as the 'stud-farm of the world'—foreign buyers at Tattersall's sales are still spending about £1,000,000 a year on buying our racehorses to replace and improve their own stock—not until the Trust became established had any effort been made, co-operatively and scientifically, to eliminate many factors critical to equine health. This great, fabulously rich industry had just rubbed along, relying almost entirely on horse-sense for its rewards, but footing a heavy bill for its apparent want of science.

It is difficult even now, as Colonel Barnett explained, to collect statistics. So many useful records, veterinary records, were either not kept at all or were lost. Had the Trust functioned earlier, no one could fairly claim that our thoroughbred strains would be finer. Such horses as Lord Derby's Hyperion, Derby and St Leger winner in 1933, and a champion sire in 1950 at twenty years of age, are superlative of their kind, and worth, in their prime, at least £150,000 to their owner. Yet, many serious losses would undoubtedly have been prevented, losses accruing chiefly from infertility in mares, parasitic infestation, and sleepy foal disease.

Out of 39 dead foals submitted by Newmarket veterinary surgeons in 1949 to the Station for post-mortem examination, pyo-septicæmia had caused the death of 13 of them. At birth the foal so victimised is abnormally sleepy; it suffers from a peculiar form of poisoned blood. Generally, it lies prostrate in its stall, legs outstretched, an attitude of ominous lethargy. And, within forty-eight hours of birth, it is often dead. A

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mare can, as records prove, give birth to a sleepy foal one season and the next year produce a perfectly normal foal.

Balaton Lodge, where the Equine Research Station has its headquarters and laboratories, is on loan to the Trust through the generosity of Miss G. Yule. The Lodge was formerly the headquarters of her racing stud. Now, a surgical wing and well-lighted, pleasantly-heated laboratories have been conjured skilfully out of its racing stables, and, whether you enter the tackle-room, where surgical harness is stored, the sterilising or instrument room, or stand by the wing's electrocardiograph machine, an instrument which plots a graph of the animal's heart action, the impression is one of cleanliness, efficiency, and progress. Twenty-four horses, each presenting a research problem, can be accommodated in adjoining stables. There were some animals undergoing penicillin treatment. They required an injection every three hours of the day and night.

I WAS attracted especially by the operating-theatre. As its centrepiece, it has a concealed and sunken bed, filled with compressed straw, over which, slightly above floor-level, a canvas cover is stretched. On this bed, thus rendered comfortably resilient, the horse is anaesthetised. By a jugular injection it can be put out and down for two hours, and, so that the surgeon can work untiringly, one side of the 'table' is flanked by a concrete pit about three feet deep. Standing inside this, he can operate on the horse easefully and at close quarters.

A crib-biter cum wind-sucker was recently on the table. The operation, which cures these vices, demands great precision and sees the surgeon removing specific muscles from behind the animal's jaw. In another case, a pioneer blood-transfusion was carried out on a foal with hæmolytic disease. This infection has characteristics similar to those which induce jaundice babies. Highly dangerous to life, the ailment can be got rid of, as this operation proved, by replacing the foal's own blood with the clean blood of a non-reacting mare.

Then, in the laboratories I saw a woman specialist peering fixedly into a microscope examining some struggling larvæ of red-worms. Red-worms belong to the Strongyle family, of which there are many different

varieties. The most dangerous member, as far as the horse is concerned, is the *Strongylus vulgaris*. Strongyle eggs are passed out in the faeces of an infested horse, and from there hatch out larvæ which attach themselves to blades of grass and are swallowed by another horse. Once settled in the digestive tract, these larvæ unsheath and begin their mischief by acting as mechanical irritants. They then bore through the walls of the intestine and invade many organs of the body, such as the liver, lungs, and kidneys. The *Strongylus vulgaris* has a predilection for arteries, through the walls of which it burrows and frequently forms an aneurism or clot, which may completely block the blood-vessel, with fatal results. Colonel Barnett showed me some glass-cases where well-preserved sections of horse arteries clearly demonstrated the effect of this deadly assault.

When cattle graze meadows infested with this worm the larvæ-to-be are faced with a startling shock. Discovering themselves in a warm environment akin to that generated inside a horse, they unsheath, only to succumb quickly, fortunately for their hosts, to the cattle's gastric juices. Research is now out to discover, through a series of pilot experiments, exactly how pastures can best be cleared of and horses protected against lethal infestation.

In but two years of study under Professor Miller's direction this Station has already registered a world-wide mark. Research guests are coming to it from many foreign countries. Some of them stay three months or so, pursuing special investigations, helped by the Station's staff. Dr L. Ohlsson, veterinary surgeon in charge of the Swedish National Stud at Flyinge, spent three months here in the spring of 1949. To his delight also, he received every encouragement to study intimately British methods of stud management.

Another research guest, Dr Boswell, a veterinary surgeon, came from Johannesburg, and Captains Unsal and Yuce, veterinary surgeons from Turkey, stayed for several weeks under terms of travelling fellowships granted by their own government. And, if further indication of global status is needed, subscribers to the Station's funds now include, among other organisations, the Buenos Aires Jockey Club, the Irish Racing Board, the Jockey Club of South Africa, the Australian Jockey Club, and the Royal Calcutta Turf Club.

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NEAR by, at the Canine Research Station at Kennett, Cambridgeshire, experts are investigating leucæmia, a disease baffling no less to medicine (symptoms being a large increase in the number of white corpuscles in the blood), para-distemper or hard-pad disease, night blindness, and Scotch cramp.

As a test for defective night vision, suspected victims are turned loosely into an obstructed runway, the obstacles being blocks mostly of wood, non-smelling in character. Testing takes place at dusk. Animals, night-blind, bump against these blocks, if the disease has not too firm a hold on them. Chronic sufferers as a rule take up a ca' canny attitude, and stand immobile or stiffly alert, ears cocked, and sniffing hard to get a scent on what lies ahead. A high-stepping gait seems also, in quite a few cases, to indicate defective vision. At present, research workers here are experimenting to see whether Irish setters, known to be night-blind, transmit this affliction to their offspring.

As an interesting item of separate research, but sponsored by the Trust, Dr Williams Smith and Professor J. C. Cruickshank have been inquiring into the danger cats and dogs may convey by acting as reservoirs of the salmonellæ, noxious bacteria which cause food-poisoning in man. Their findings should give many pet-lovers serious thought, especially those who, like many grocers, allow cats to sleep and prowl in food-shop windows, for, as Dr Williams Smith sees it, the ubiquitous cat, while unchallenged as the world's master mouser, should never be permitted free access to unprotected food. The experiments that he and his colleague conducted show that cats harbour these evil bacteria as readily as rats and mice, long regarded, and condemned, as the principal carriers of the salmonellæ. If cats, therefore, are to guard larders and cupboards, they should be positioned strategically, and never, as happens so often now, given a roving brief, which allows

them the open run of every food tin and bin.

Then, at the Poultry Station at Houghton, near Huntingdon, research is going ahead into common diseases, like paralysis, tumours, and colds, which, in the aggregate, yearly rob Britain of 500,000,000 eggs and some 40,000 tons of poultry meat. As part of the day-to-day routine at this station, special tests of consequence to all poultry-owners are conducted with the egg, the chick, and adult birds. One feature of the Trust's activities, as perhaps an outsider best discerns it, lies in the provision of first-class diagnosis services, which are at call for any new emergency.

ACTIVE in almost every sphere of animal welfare to-day, the Trust makes no wild promises, but concentrates solidly on its tasks. With a Council of Management numbering men so distinguished in their spheres as Professor F. A. E. Crew, Lord Moran, Lord Stamp, Sir James Turner, and Sir Thomas Baxter, its progress ought not to be impeded. However, in spite of substantial contributions from many sources, the Trust last year had to work to an income of £70,000. This is inadequate. When its Livestock Research Station becomes fully operative, the Trust will be a godsend for the nation's farmers. If each of them, realising this, could contribute only £1 a head per year, he would, in time, save himself an extra £100 a year, and the Trust would be assured of a £300,000 income.

When the Trust is free of financial anxiety, then will every animal and every human being in this island—and, indeed, far beyond it—advance gradually but decisively along the way to a more wholesome life, a better balanced life. Not Britain alone, but the whole world must soon traverse this road, or through over-congestion, under-production, poor living standards, and disease rampages we shall stumble only into chaos and decay.

The Sack

*'Partir, c'est mourir un peu'—
This comfort I derive,
It's better to 'mourir un peu'
Than bury yourself alive!*

LORNA WOOD.



The Flower-Seed Cleaner

J. E. SHELLABEAR

THIS is the time of the year when the amateur gardener, his spring-cabbage plants standing sturdily, his perennial border tidied up, puts away his spade, and looks forward to three or four months of comparative idleness.

Not so the seed cleaners. It is their busy season. Each day consignments of grass, vegetable, and flower seeds are coming into the warehouse from growers all over the world. All the consignments are to some extent mixed with different kinds of impurities—weed seeds, dust, and pieces of leaf and stalk. The cleaner's job is to get rid of this waste matter, leaving a residue of pure seed, which eventually finds its way into the retailer's packet. No department of the trade has such a wide range of types of seed as the flower-seed department. In the trade catalogues there are over three hundred different species. On one hand there is the canna seed weighing almost half-an-ounce and metal hard in texture; on the other there are the minute seeds of lobelia and begonia, over ten thousand of which go to fill a teaspoon.

LET us look at J.L., foreman flower-seed cleaner of a large wholesale firm, with whom he has spent the whole twenty-five years of his working life. His is a most responsible post, for every parcel of flower-seed, whether it is half-an-ounce of a new variety of sweet-pea or half-a-ton of common nasturtium, has to be personally vetted by him. He directs

and supervises all cleaning operations, and finally it is his signature, certifying the amount of clean seed received, that sanctions payment to the grower.

We see him now sitting at his bench, looking grimly at a pile of parcels in the corner. 'Let's have that one,' he says to an assistant, pointing to a small, oblong parcel, bright with the red of sealing-wax and the blue of registration marks. Carefully the assistant unpacks it, finds inside a cocoa-tin, from which he extracts a piece of paper. On this is written, to invent an instance: 'J. Brown, Oak Tree Cottage, Kelvedon—15½ oz. Lobelia Crystal Palace Compacta.' J.L. looks at it quizzically. 'Brown always was a bit of an optimist,' he laughs. 'He's probably got about four ounces of seed there.'

The foreman tips the contents into the scale-pan and checks the weight accurately. The contents are uninteresting in themselves, looking for all the world like dust swept up from the floor, as, indeed, some considerable part probably is, for the grower in harvesting the seed wastes nothing.

The foreman's first step in the cleaning of the seed is to reach for the 'tumbler.' This is a set of miniature sieves or riddles, each about ten inches in diameter, and graduated according to the aperture of the mesh, with No. 60 the smallest and No. 12 the largest. These sieves are beautifully made, of polished chromium, and are reserved exclusively for the choicer seeds, such as primula, streptocarpus, lobelia, gloxinia, and begonia. Pro-

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bably the most valuable of all seeds is gloxinia. An eggcupful of a special variety would be worth well over a hundred pounds sterling. The care that has to be devoted to the handling of gloxinia seed can, then, well be imagined.

The selection of the right riddle is half the battle of the seed cleaner's art, and instinctively J.L. picks out the No. 60, the mesh of which is too small for even lobelia to pass through. So on to the sieve the 15½ oz. of undressed lobelia seed goes. J.L. then agitates the sieve gently. Through the sieve pass all the finer particles of dross and sand, while on top remain the seed and the larger particles of waste, the whole now showing more of the reddish-brown colour of lobelia seed. Next, he selects a larger-meshed sieve, No. 48, which allows the seed to pass through, and leaves the bigger waste on top. This latter he empties on to the other waste.

After the sieving operation, a careful inspection with a powerful lens will show whether any more waste is contained in the sample. If there is, it must be the same size as the seed. Thus another method must be tried. Fanning, as it is called, makes use of the fact that the seed and waste particles have different specific gravities. The sample is placed on a specially-hollowed wooden board or, what makes an efficient substitute, an ordinary dust-pan. J.L. moves the pan upward and forward and then slightly downward, finishing with a jerk. The particles lighter than the seed float forward away from the pan to fall upon a sheet of paper, and this movement repeatedly carried out will clean away the light waste, including the immature and hollow-shelled seed, which can be eliminated by no other method.

In most cases sieving and fanning are enough to secure a clean sample. It may be, however, that there is among the good seed some heavier waste, generally grains of sand. To separate this, the last process is reversed. A sheet of paper is put on the bench and the good seed fanned out on to it, with the waste as residue in the pan. The result may be 3½ oz. of clean seed, with the characteristic gleaming lobelia look, and 12 oz. of cleanings or waste. These facts are marked on the credit note, which is passed to the office for payment.

THE two operations used in this particular cleaning task—that is to say, sieving and fanning—are the basis of the art of seed

cleaning, and with a few exceptions all mechanical methods embody the same principles.

Riddles are usually of one main size—twenty-four inches in diameter; and of three main types—the square mesh, the long-hole mesh, and the round hole. The square mesh is the general purpose tool. The long-hole mesh is particularly useful in two jobs—the separation of stalky waste from a round seed, and of irregular-shaped waste from a flat seed. The chief use of the round-hole sieve is the cleaning of round seeds, such as sweet-peas, especially when a good regular even sample is required.

Much riddling can be delegated to less experienced assistants, and, indeed, it is one of the first operations that the young apprentice learns; but, before he handles even a scale-pan, the foreman will impress upon him the two great rules of the trade: 'Check everything before you do anything' and 'Always see that any tool you use is clean.'

Very often the apprentice's first job is the sieving of annual scabious seeds through a round-holed riddle, leaving behind the stalky waste. Owing to the fibrous nature of the seed-cover, only a handful or two can be sieved at a time. Consequently the cleaning of quite a small parcel of scabious is a real test of patience for the novice.

There are no power-driven machines in the flower-seed cleaning department. The limit of mechanisation is a hand-operated fanning machine. This is a metal, box-like structure on four wooden legs. The air-motion is provided by a fourfold rotating fan, operated by the turning of a handle, and the undressed seed is put in the hopper at the top.

The method of operation is as follows: The cleaner first gets the fan moving at the rate he judges necessary to clean the particular seed. He then carefully opens the aperture to allow a steady flow of seed across the path of the moving air. This current will be strong enough to blow the light dross up an inclined plane and out in front of the machine. It cannot do this to the seed, which is heavier and falls on to a chute and so into a bin set to catch it. The cleaner checks his work from time to time by inspecting a handful of cleanings.

It is because it is directly controlled by the operator that this machine can be used for such a wide range of seeds. Even light, feathery seeds, like French marigold, can be

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cleaned if a helper feeds the raw seeds on to the aperture a handful at a time. For seeds of great value, such as gloxinia, begonia, and primula, hand-fanning is the only possible method, and here the chief takes over. His deft hands and perfect judgment of motion can turn a heap of seeming dirt into an ounce or two of clean seed, worth maybe more than ten times its weight in gold.

Sometimes even when every artifice of riddling and fanning has been resorted to, the seed is still not yet clean. An example is sweet-peas. It so happens with them that in a sample there may be a number of dead seeds, obvious to the seedsman by a slight difference in colour and texture. These and any weevil-infested seeds can only be eliminated by that most laborious and wearisome of operations—hand-picking.

Even this is not possible in the case of acroclinium, anemone, and globe amaranthus seeds. These are all fluffy in nature, the in-

dividual seeds coalescing when packed in a parcel or bag. The warehouse can do nothing with these, and relies entirely on the grower. If the latter harvests his seed cleanly and when it is ripe, all will be well. It generally is so, for only specialist growers are entrusted with such seeds. This emphasises the essential need for co-operation between the grower and seedsman. The grower must harvest his seed so that it can ripen into maturity. If this is not done, no amount of cleaning will make immature seed germinate. Given a basis of good seed in a sample, the seed cleaner will clean out all the waste and produce a sample that will grow into a crop to delight any gardener.

Seed cleaning is not a pleasant job—there is too much dust and dirt flying around for it to be that—but it is fascinating. Men, once in the trade, do not often leave it, and it is well that it is so, for, above all, this is a trade in which experience counts.



The Fortune-Tellers

H. M.

THERE are two Indians to see you, sir,' said Sande, rousing me from a coma following a palm-oil chop on a hot Sunday afternoon. This rude awakening was contrary to explicit orders that I neither wanted tea at 4 p.m. nor should require anything until I called for it. A West African palm-oil lunch with its inevitable trappings is a serious matter for even a youthful digestion, and Hill Station, although some 900 feet above Free-town, can be very hot.

After patiently listening to my observations as to his ancestry, and where I would consign

him, Sande added that my visitors had sent in 'this book.' Anything written, from a chit to a volume, is a 'book' to Sande, so my interest was aroused when he produced a neat-looking file which somehow appeared very official, and I took it from him.

This file proved to contain a large collection of unsolicited testimonials. From these it was clear that the bearers were no ordinary fortune-tellers. From India, Kenya, and Egypt the writers of the testimonials swore to the amazing skill of these seers from whom nothing of the past or future was hidden. It

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would be a simple matter to provide such a collection of probably doubtful origin, but on the top of the file there were the latest additions from Sierra Leone, written and signed by people who were well known to me and whose handwriting I readily recognised. These additions I read through as carefully as my semi-comatose condition permitted, and I concluded that some of my friends had revealed an unsuspected weakness in succumbing to such nonsense.

I handed the file back to Sande, with directions as to where the charlatans should proceed, when out of the corner of my eye I saw two turbaned Indians squatting on the floor a couple of yards to my left. Before I could explode at this unheard-of intrusion, the larger of the two fixed me with a piercing gleam from deep-set eyes and began to give a tolerably accurate character delineation, not omitting the faults which I had hitherto thought I had successfully concealed.

THESE fortune-tellers were certainly enterprising practitioners; I subsequently learnt that they had bribed Sande to disregard my instructions, although even he was surprised by their silent entry.

I suppose I was taken off my guard, and, emboldened by my temporary silence, the pair seated themselves in front of my deck-chair and the tall one, still fixing me with his penetrating stare, asked if he might read my palm, for which service no reward was expected.

It was at this point that I lost the initiative. I should have sent the two of them about their business; instead, I weakly proffered my hand to the chiromancer. The fellow looked at both hands and then elaborated much of what he had already said regarding myself, without asking me any questions.

This seemed fair enough, but now would I give him an opportunity to prove that he could read the past. This he would most faithfully do for a fee of one pound, later reduced to ten shillings. Then, if I was satisfied with this, a further ten shillings would ensure an accurate reading of the future.

The beggar had certainly read me correctly, and this must be placed to his credit. One who had always scoffed at the nonsense indulged in by women and girls at fêtes and fairs feebly agreed, and the seance commenced. The smaller man quickly opened a large case and produced a picture of a man's

profile covered with numbered squares. Obtaining from me a sheet of notepaper, he folded this in two and carefully tore it into two equal parts, giving me one piece and retaining the other.

Meanwhile Sande was joined by two or three other members of the staff, who watched the proceedings goggle-eyed. Surely this was some form of ju-ju of the utmost interest.

Provided with a pencil, I was told to write down my names, the date of my birth, where I was born, the Christian names of my parents, and finally the maiden name of my mother. Now, still only half-believing in the game, I considered it was quite possible the rascals might have obtained beforehand all the foregoing except the last. Even in those days, one had to complete forms with all sorts of personal information, although one supposed the forms remained at the Colonial Office in London. But even the Colonial Office was not interested in one's mother's maiden name, so that, if by any means the other information had been obtained from a secretariat clerk, this last item was a real test.

Having written down these details in block capitals as requested, I was instructed to fold the half sheet until it was a very small packet, keeping pace with the Indian, who folded his half at the same time. The packet I was next told to drop on to the numbered profile, and the assistant necromancer carefully made a note of the number on which the paper fell. This was repeated several times, and each time the paper was handed back to me.

I HAVE said it was hot, I had overeaten at lunch, and undoubtedly my hands were sweating profusely, so it was not surprising when I was asked to go along and wash my hands and arms thoroughly. Moreover, I was to retain possession of my piece of paper and take it with me, as thereon was the vital information.

On my return there was more reading of the palm, and slowly and with apparent concentration the names and other details as written by me were divulged in the form of questions and answers. These leading-questions, which invariably required affirmative answers, were not discharged in sequence or by rapid fire. 'Is your Christian name —?' was followed by much irrelevant comment leading gradually to the date of my birth and so on.

Still extremely sceptical, I had already con-

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cluded that the wretch had come prepared with all these facts, but there was still the bunker of my mother's maiden name to be negotiated. I am told that those people who delight in devising forms for a suffering public to complete have thought up one dealing with a census of distribution which has more than a hundred questions to be answered, but, as far as I know, even these experts have not thought of including this family detail.

In my case the obstacle was rendered all the more difficult because the pronunciation bore little semblance to the spelling. Anyhow, taking a firm grip, my turbaned interlocutor made a very good shot at it, and completely stymied me. As far as I was aware, there was not a soul either in the colony or in the Colonial Office who knew of this unimportant detail; indeed, I had to think for a few moments before I could recall it.

Well, with such an exhibition of omniscience, surely I would now be prepared to go the whole hog and learn what the future held in store for me. Ten shillings was, after all, but a small price to pay for the services of one who had proved himself beyond doubt. And I fell. There was much of the usual nonsense associated with similar prognostications published in some of the Sunday newspapers. Whether any of it was subsequently fulfilled, I don't remember.

In due course the pound-note was handed over, thus completing Sande's conviction that this was a demonstration of the most powerful ju-ju that he had ever witnessed. He had understood very little of what was taking place, but to see his parsimonious employer

calmly hand over a pound-note without any tangible return, and this, moreover, to an Indian, for whom the African has but little respect, was really too much for his habitual good manners. His involuntary expression of surprise, a rather loud imitation of a rook, was a fitting end to the seance. My visitors departed, no doubt well pleased with their success with another gullible victim.

At odd moments for a few succeeding days I thought about this affair. All kinds of explanations were conjured up and rejected, including the possibility that there might be more in telepathy than is generally believed. Then one day it suddenly dawned on me. There were two pieces of paper—one on which I had written the details, and one which the Indian had folded in company with me. They were exactly alike. I had dropped my piece on the figured profile and the pieces had at some time been exchanged. If, when I had gone to the bathroom, I had been curious enough to unfold the piece I had taken with me, I have not the slightest doubt it would have been blank. While I was at the bathroom, however, the rascals had either memorised, or more probably copied, the details. Cross-examining Sande on this point was fruitless. The smaller of the two Indians had been writing throughout the proceedings, so whether he continued this during my absence had not been particularly noticed.

The only satisfaction I derived was that I had firmly resisted adding my testimonial to the collection.

Pentland Fall

*Now wrinkled autumn winds the silver flax
About the distaffs of the willow-herb;
Grey-headed thistles shiver in the field,
And saucy winds disturb
The beech-tree's auburn tresses; hemlocks sigh,
For of their parasols of fine white lace
Naught but the ribs remain.
The knapweed's purple turban fades apace,
Rusty the sorrel in the withered grass,
And to a sombre measure move the hours.
Yet I'll not grieve, sweet birds will sing again—
The leaf that dies shall cradle April flowers.*

ELEANOR QUIN.



The Discoverer of D.D.T.

Dr Paul Müller of Basle

KEES VAN HOEK

HE is a civilian who never left the territory of his neutral country during the recent World War, yet, but for him, one of the greatest campaigns of that war could not have been undertaken. He is a layman who never studied medicine and, of course, never practised as a physician, yet he won the most coveted world award in medicine—the Nobel Prize. The answer to this double riddle is Paul Müller, the research chemist who discovered dichloro - diphenyl - trichloroethane, which the sturdy Swiss spell as one word. For all its tongue-twisting mouthful, even as broken up by hyphens, everybody knows it now as a household word—it's D.D.T. to you.

In the long first-floor corridor of the Geigy Laboratories one door bears Dr Müller's name. The door opens into a large sunny room. The desk, littered with papers and heaped with bulky tomes, could be a lawyer's. So could the large conference-table, which fills most of the rest of the floor-space. I was not long in this room before I realised that littered desk and big table were symbolic of the science of discovery, which demands vast reading and many confabulations. Dark-haired Dr Müller looks younger than his fifty-one years, a man compactly built and impeccably dressed. His handsome head is that of a scholar. He is quiet of mien and of manner. I had been forewarned that he is rather reserved and difficult to get to talk, but I thought the blue eyes in the open, tanned

face so naturally kindly that I began by confessing how the abracadabra of science is complete double-Dutch to me, and his at first slow smile soon spread into a generous friendliness.

DR MÜLLER'S father was a railway-clerk. Son Paul, eldest of his four children, went to the grammar-school in Basle, and there his passion for chemistry was born under the enthusiasm of his physics teacher. As a boy of fifteen he built his own laboratory in the attic of his home. 'Of course,' he admitted, still tickled by the recollection, 'I had the inescapable explosion, but, as it was only a loud bang without further damage, my father merely shook his head.' From grammar-school he went on to the University of Basle and there studied under the great Professor Fichter. 'He taught me much,' Dr Müller told me, 'but nothing quite so valuable as his insistence that to get results in chemistry one needs above all an inexhaustible stock of patience.'

Basle, Switzerland's second largest city, had up to now been to me only the place where one of Holbein's portraits of Erasmus hangs and where lives a photographer fully the rival of Ottawa's Karsh—namely, Robert Spreng. In the world at large it has the reputation of a centre of pharmaceutical industry; names like Ciba, Sandoz, Hoffman-Laroche, and

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Geigy have a reputation far beyond their country. From making textiles, Basle logically turned its industrial interest to dyes, and from that it was only one step to bactericides and vitamins.

As a freshly-graduated honours doctor in chemistry, Paul Müller went to Geigy's, where he chose insecticides as his special field. That was in 1935, when the Swiss farmers were getting worried over the spread of the Colorado beetle, which, having come to France with the Americans in the First World War, was now eating its rapacious way towards the Swiss border. Insecticides, of course, have always existed, but they were either very poisonous or had no lasting effect, and were all very costly to produce.

'I found,' recounted Dr Müller, 'a colossal literature and a flood of patents, but none of practical, wide-scale use. I reasoned out with myself what was needed, and, truth to tell, even on paper it did not look too simple. The thing had to be strong and lasting and had to kill very many different species of vermin, without being poisonous to plants, animals, or man. It had to be without obnoxious smell, and it had to be cheap to allow mass-production. In other words, it had to be entirely different from anything then existing!'

How does one set about such a task? Dr Müller smiles: 'It implies a great deal more donkey-work and study than inspiration, and an even greater deal of perseverance. I "thought" through the entire field of chemical literature. When I finally found the solution, it was broadly along the lines where I had expected to find it. Mind you, for all one's training, brainwaves or flair, whatever you like to call it, and for all one's perspiration, there is in these matters still the final element of great good luck.'

Dr Müller worried over his problem for four years, first trying out his solutions on flies. A hundred thousand flies passed through the large glass-case in his laboratory. He took up his old interest in biology again, as he made all his experiments himself. 'Too much depends on one's own observation of what may be to others only insignificant facts,' he explained. They were years often of strain and tension, as only a scientist can realise who feels that he is on the verge of a solution which yet eludes him again and again at the last moment. What is now D.D.T. was about the three hundred and fiftieth preparation. It was, like each of its preceding failures,

carefully thought over, minutely figured out, and painstakingly experimented.

'WHEN at last your flies surrendered, it must have been a great thrill to you,' I prompted. Even in recollection I can see again the flush spread over Dr Müller's face. 'The great thrill,' he said, 'having first seen the flies dead, was to find that the preparation was as fatal on body-lice, for those are the carriers of the most dreaded epidemics.'

The discovery was not so readily accepted at first, all the same. D.D.T. had not the instantaneous knock-out effect of existing insecticides. It was not a question of just a whiff, and sweep the bodies from the floor. D.D.T. worked more slowly, but it was more lasting. When Dr Müller first experimented with it on the window-pane in his own office, the flies were still happily buzzing around when he left that night. However, not only were they all dead the next morning, but even flies which alighted on that same window for months afterwards were dead within twelve hours. Dr Müller tried it out on the potato-patch in his own garden—gardening and trees are his only hobby—then the Swiss took it up on a very large scale. The tests were so completely successful that in 1942 'Gesarol' appeared on the agricultural market and 'Neocid' in the pharmacies.

The ideal pest-killer killed not only the Colorado beetle, the cockchafer and the green weevil, the cloth-moth and the carpet-beetle, but also the head-louse, the body-louse, and the mosquito. The earliest samples of D.D.T. had been sent at once to Geigy's affiliated companies in Germany, Britain, and the U.S.A. The Allies analysed the composition and forthwith clapped the hush-hush of a military secret over it—although the Germans had already tried it out on the Russian front, but in too much of a hurry to realise its possibilities.

The Allies first tried it out in North Africa. Their Burma campaign would have been impossible without it, for never before had men been able to destroy full-grown mosquitoes, and the battle against malaria was, until then, waged only against the larvae. Now early every morning low-flying planes spread mosquito-killing D.D.T. over the jungle about to be traversed the next day by the troops. Without D.D.T. the typhus epidemic which broke out in devastated

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Naples in January 1944 might have killed more people, conquerors and vanquished alike, than all the air-raids. Within a month the outbreak was under complete control, and, by using D.D.T. in all the refugee and prison camps, Europe was saved from what doctors had feared as the war's most gruesome pestilential aftermath. That's why Dr Müller got the Nobel Prize for Medicine.

In typhus the body-louse is the carrier. Be it louse or potato-beetle or cloth-moth, the skin of all such vermin forms also their skeleton, a tissue covered with a substance which acts as a water-repellent. The beauty of Dr Müller's insecticide is that it does not have to be taken in with food or air. It is a contact poison, and, as it is practically insoluble in water, it is innocuous to warm-blooded animals, including man. But it penetrates the fatty water-repellent substance of the skin of vermin, reaches the nerve endings, and dissolves in the nerve. That is *how* it kills, not instantaneously but surely. *Why* it kills, medical science has not yet determined.

TO-DAY D.D.T. is in mass-production, and is used all over the world, specialised to the biological characteristics of the insects which it combats. Entire territories from Sardinia to Ceylon are being treated. It is

possible that some flies with strong resistance survive a campaign, and in the new generation which those flies then breed nature cunningly provides a certain immunity, honouring the survival of the fittest. But nature is easily deceived, and if the insecticide is not used for a season she sheds that precaution and the next generation is caught napping again without any immunity.

In his own quiet Swiss way Dr Müller must be a modest millionaire from the *tantièmes* on the sales of the product, which is, as such, the property of his firm, of which he is now a deputy director. It has made no change in his day or in his mode of life. He is now working on fungicides, like mildew. 'A farmer,' he explained, 'has to be a botanist to know exactly when to spray his trees. It should be possible to prepare a solution which sinks into the roots and does away with spraying. You know,' he continued, 'the strangest thing happened when, having discovered D.D.T., and drafting the patent, I stumbled on the fact that its exact formula had once been published before, seventy-seven years ago, by an Austrian student at Strasbourg University. He had not the glimmer of an idea what it could have been used for, but neither had I ever the remotest inkling that my very formula had once been defined before!'

Sweeping up Leaves

*As a very small boy I used to see
An old, old man who, it seemed to me,
Had never had anything else to do
But sweep up leaves in the avenue.*

*But later on I came to know
That years, oh years and years, ago
He wasn't an animated broom
But a stable-lad and then a groom.*

*As gay a spark as ever there was,
He married the housemaid, Nan, because—
Well, never mind, he married Nan,
Who settled him down as a steady man.*

*For years a coachman after that,
In great top-boots and a smart top-hat;
But he was getting stiff and lame
When that "orrible stinkin" motor came.*

*It chivied him out of the stable-yard
Into the garden. That was hard,
For he'd lived with horses all his life
And he loved them as he loved his wife.*

*For him the garden held no charm,
But he took defeat with a stoic calm,
And there he worked, till the death of Nan
Left him a silent failing man.*

*But who could part with a friend like that?
The dear old place was his habitat!
So he took his wage as he used to do,
And swept up leaves in the avenue.*

*What made me think of him to-day
Sweeping the withered leaves away?
Dead leaves. Dead years. When we're old too,
There'll be leaves to sweep from the avenue.*

M. M. M.



Comets

JOHN MANTON

AT intervals over the years the newspapers tell us that on such-and-such a date we shall be able to see so-and-so's comet as it wings across the heavens trailing behind it a 'fiery tail millions of miles long.' Such objects are, indeed, very striking things to behold, and one can readily understand why many strange beliefs have been built around their appearances.

The ancients, having superstition deeply rooted in them, were ever ready to associate the occurrence of a comet with some great catastrophe, and on several occasions coincidence lent a hand to add to the apparent truth of these beliefs. It is said that a comet was seen shortly after the murder of Julius Caesar, and another, according to the records kept by Josephus, in the year A.D. 66, just before the fall of Jerusalem.

Superstition, however, is a very elastic thing, and it is not surprising to find that there have been times when the arrival of a comet has been set down by one party as a herald of good fortune, and by another party as an omen of disaster. Such was the case in 1066, when the advent of Halley's comet coincided with the Norman invasion of Britain. The famous Bayeux Tapestry depicts the comet as a good omen for William and a bad one for Harold.

The fallacy of the appearance of a comet bearing any relation to happenings here on earth was finally exploded early on Christmas Day 1758, when the most famous comet of all returned exactly as predicted by the man to

which it owes its name—Halley, the second Astronomer-Royal. Halley calculated the orbits of twenty-four bright comets, during which time he became aware of the fact that the orbits of those that appeared in 1531, 1607, and 1682 were practically identical. He came to the conclusion that these comets were one and the same, and his prediction that the presumed comet would return at the latter end of 1758 made history. That Christmas Day saw the proof that comets move under the Sun's gravitational control, as do the planets, and, therefore, move in obedience to definite laws.

Halley's comet, being periodic, as are the great majority of comets, has a period of about 76 years, and was last observed in 1910. Encke's comet has the shortest period. It returns every $3\frac{1}{2}$ years or so, and has been observed on each occasion since 1786.

There are five comets which belong to what is known as Neptune's family that, in their travels, journey out beyond the orbit of Neptune. Jupiter also has its family of comets. They number about fifty in all, and return at periods which range from four to eight years. The reason they are associated with Jupiter is because they do not travel far beyond the orbit of that planet.

Great extremes of heat and cold are experienced by these strange messengers from space. Having very long orbits, most comets, when at their farthest distance from the Sun, travel out far beyond the most distant planet. Their rate of progress is then slow and they are

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subjected to intense cold. Their temperature rises and speed increases rapidly as they near the Sun.

Odd but true is the fact that, were it possible to mould 100,000 of the largest comets ever seen into one, the resulting body would weigh less than our Earth. Despite the remarkably small mass of the comets, their bulk is amazingly large and in many instances fills a space thousands of times bigger than that occupied by the Sun or the great stars. With the exception of the nebulae, comets are the largest known heavenly bodies.

SUCH being the case, what, then, are comets made of? They are in three distinct parts—namely, the head or coma, the nucleus, and the tail.

The coma is made up of a cloud of luminous transparent matter and derives its name from the Latin word *coma*, which comes from the Greek *komē*, meaning 'the hair on the head,' the name coma being applied as the head of the comet looked rather like a head of hair. The word comet itself, it might be said, derives through the Latin *cometa*, *cometes*, from the Greek *komētēs*, signifying 'comet' and, more remotely, 'long-haired.'

Near the centre of the coma is the nucleus. This is a bright point which only appears when the comet draws near to the Sun, and following which is the tail.

The tail is mainly responsible for giving the comet its massive look as it appears as a stream of light sometimes many millions of miles long. A curious fact about this tail is that in every case it is directed away from the Sun. As the comet approaches the Sun the tail follows the coma, and when the comet goes round the Sun the tail is turned away, preceding the coma as it moves out into space again.

Astronomers have devoted much time to the study of comets, and have formed the opinion that the head is composed of small solid fragments. The experts differ widely, however, in their beliefs concerning the size of the fragments, some saying they are as big as rocks, others referring to the head as the 'gravel-bank,' 'dust-cloud,' and even 'smoke-wreath'; but it is probable that the coma is composed

of grains no bigger than pinheads many yards apart. Each fragment carries with it an envelope of gas in which, it is thought, electrical discharges produce light.

It is believed that the tail consists of an enormous mass of minute particles and contains poisonous carbon monoxide and cyanogen gas. These particles and gases were originally discharged from the nucleus towards the Sun, which repelled them by the pressure of its radiations, then the nucleus also repelled them, and thus the tail was formed.

Scientific investigation has revealed to us that the approximate mean density of the comets is only $\frac{1}{1000}$ part of that of the air here on Earth. This means that the density of what remains when we produce the nearest thing possible to a vacuum is about the same as that of a comet.

AT one time a great deal of apprehension was felt by our ancestors as to what would be the result if Earth and comet struck one another. Their fears were quite unnecessary, for it is more than likely that if a comet did strike the Earth we would be either totally unaware of the fact or, at most, witness an unusually fine display of meteors as the fragments of the coma rushing through the Earth's atmosphere were burned up.

Actually, on 27th November 1872, and again in November 1885, the Earth passed through the place in space where Biela's comet should have been. However, this comet did not keep its rendezvous as, in 1852, it was observed split in two parts, with the halves travelling about a million and a quarter miles apart. In 1872, when the comet was due back, it failed to appear, but instead there was a magnificent shower of meteors travelling in its orbit. It is very probable that the comet had disintegrated and that the meteors represented all that remained of it.

Again, in 1861, on 30th June, the Earth passed through the tail of the comet of that year and there was a hazy dark appearance in the early evening; while on the night of 13-14th November 1866 there was a marvellous display as thousands of shooting-stars flashed across the sky when our planet passed through the debris of Tempel's comet.



The Tongue and the Fox

GEORGE EWART EVANS

IT'S not often that the Cwmglog Pack goes hunting, but, when it does, somebody or other besides the fox is sure to get mixed up with it. The trouble is that the old fox won't play fair. He'll not keep to the hills, where there's a gentleman's chance of catching him; he will go dodging down into the valley, where there's a good fox's chance of getting away—even if there's a street full of small boys running pelting after him.

This old fox had been around in Llwynycelyn for so long on one mission or another that they thought about giving him the vote. The Cwmglog Pack couldn't get near him; he was so quick and cunning. He'd drawn more sweat and caused more bad language than any fox that had got himself in front of a pack of hounds. At one time you only wanted to ask Trefor Matthias, the auctioneer, in an off-hand sort of way: 'Let me see now, did you ever catch that old dog-fox you used to raise up in the Glog Quarry?' for his nice complexion to turn the colour of a Victoria plum. Catching that fox was his purpose in life, and, without the old fox to run after, his life would have been as empty as last year's calendar. A dozen or so others went on the hunt with him—farmers and a sprinkling of people who

had a pair of riding-breeches and badly wanted to give them an airing.

On this particular day the Cwmglog Pack was out in full strength. They raised the old fox in a spinney near Jenkins's farm, and away they went on the usual run along the spine of the hill as though they were bound for the next county, Trefor Matthias on a big chestnut in the lead and a few of his cronies just behind him. Down in Llwynycelyn they soon heard the hounds belling away as they took up the scent, and the people in Top Row tumbled out of their houses to see whose circus was passing. The horses and the riders could be seen just topping the hill, and for a few minutes it was like the films. Then they went out of sight behind a small plantation of larch trees.

Now it was a fine day towards the end of October, and once the folk in Top Row were out of their houses they tasted the air and said it was worth a few minutes of anyone's time. So they stood around chatting about the weather and so on—anything that was suitable to a morning when the sun had lifted the valley right on to the hills. They were nearly all women, since most of the men were at work or asleep. But later on, after the hunt had gone out of sight, Thomas Cornelius, the

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old blacksmith, shuffled up. He would have gone miles just to see the tails of a pack of hounds. He had Cadwaladr, his grandson, with him to keep the boy out of mischief.

'Too late, Mr Cornelius,' Annie Bevan the singer called out, 'the hounds have gone yelping off past the plantation. The fox is making for the moorland, no doubt.'

'Not him,' said old Cornelius. 'Sit down by there on that doorstep, Cadwaladr. He'll be back.'

'The fox be back!' echoed Cassie Roderick, one of the women talking to Annie Bevan. 'We don't want to see him down here again. The last time he came off the mountain old Davey Lewis had a stroke in the excitement.'

'He'll be back; don't you worry. He always comes back. And what does the old fox care for old men who get excited?'

OLD Cornelius sat himself down to wait, and the women went on with their talking. They were going at it like a lot of milliners, just back at work after a holiday; and big Annie Bevan the singer was setting the pace. As you know, she can do one thing better than sing—and that's talk. Once Annie sets her tongue wagging there's no stopping it. After it had curled itself around 'And as I was saying to Maggie Evans' a few times, the tongue had got hold of things and was soon wagging Annie. It went tripping and darting from one end of Llwyncelyn to the other, and Cassie and the others were helping it out when it showed signs of tiring, as helpful as good neighbours ought to be. It's wonderful what a bit of crisp weather will do.

Old Cornelius had a finger in his beard, and he was humming a tune quietly under his breath and looking up now and then on to the hills as if he expected to see the fox at any moment. Sure enough, very shortly afterwards, Cadwaladr got restless on his seat. He craned his fat neck to see up as far as the plantation; then he jumped up like a well-covered jack-in-the-box. 'There he is, Grandpa! Sliding down by the wall, there he is!'

'Where? Where? I can't see him, boy,' the old man shouted. 'Are you sure it's the fox?'

'There he is! There he goes! And the hounds, Grandpa! The hounds!'

The old man was on his feet now, and he

was waving his arms in delight as he saw the pack stringing away down the hillside. 'Where is he now, boy? Can you see him?'

'No . . . He must be in that bit of a gully by Wil Slag's pigsty.'

But here Annie Bevan took up the cry: 'There he is now! There! Why, look! He's heading straight for Top Row. The cheek of the thing!' She pointed, and they saw the fox just appearing out of a small defile, his brush glinting in the sunlight. He was less than two hundred yards away and running doggedly straight towards the group. Cassie Roderick, who was nervous, gave a shriek and ran inside the house. But Annie Bevan folded her big arms and her other neighbours stood close to her. It was plain that the fox was on his last legs and that he'd had all the fun he wanted for that morning. His head was right down, almost touching the turf, and his big brush was quivering. 'Poor thing!' Annie said suddenly. 'It's finished. Poor dab! I've a good mind to open the back-door to it.'

You might have thought that the fox had read her mind, for he made straight for her as though he were going to hide behind her skirts. But when he was within a stone's throw, he suddenly disappeared as if the ground had swallowed him up.

'He's gone!' shouted Cadwaladr; and then, chanting a great discovery: 'He's in the culvert! He's in the culvert! He's caught! He can't get out! There's a grating at the other end!'

'Stay where you are, Cadwaladr,' Annie Bevan ordered with the point of her tongue, 'and if you breathe one word where he is, I'll tan the skin off your backside.' And she gave old Cornelius a look as much as to say: 'The same for you, too.'

THE culvert ran right under where they were standing, taking a rill from the mountain and emptying it into the Dwrgi River lower down in the valley. When there had been a drop of rain, the culvert was full with a spate of water. As it happened, there was only a trickle in it on this morning. The fox would get no more than his feet wet.

They waited for the hounds and the riders to come up. There was a bit of delay. The hounds had spread out and they were nosing the ground as if they'd eat it. Whether it was the fox had been trailing his brush in the drop of water in the stream, or whether it was

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the competition of smells from Wil Slag's pigsty, the dogs had lost the scent completely and they were panicking around making a terrible hullabaloo—one blaming the other for letting the fox get away. The huntsman was working them to try and pick up the scent again, but it was worse than trying to catch a breeze on the mountain. The scent had gone entirely. Then up came Trefor Matthias in more of a sweat than the dogs. He made his way towards the people at the back of Top Row, his eye smoking with impatience, and his face ready to burn up if he could only find someone to set it against. It was natural that he should head straight for Annie Bevan and her neighbours, just as the fox had done. As he rode his horse towards them he shouted: 'Where is he?' sharp like that, without addressing anyone in particular, and looking up at the bedroom windows of Top Row as if he expected to see the fox peeping out at him from behind the lace curtains. Annie Bevan went on talking to her neighbours as if theirs was the only business that mattered within miles.

'Where is he?' shouted Trefor Matthias again. Then he caught sight of old Cornelius and the boy. 'Have you seen the fox, Thomas Cornelius?'

'Well now, I can't say that I have. My eyes are not what they used to be. But the dogs will smell him out, no doubt. Gran' morning for hunting, Mr Matthias.'

Trefor Matthias swore an oath that would have burned the tiles off the roofs if he'd been near enough to them. Then Annie Bevan turned on him and showed him the length of her tongue: 'And nice language to be using before decent people! You should be getting down off that horse and swilling your mouth out in the stream after using words like that.' Well, that started it. The battle was joined, with the fox hiding right there under their feet.

Now Trefor Matthias was no fool, and he guessed that Annie and the others knew more than they'd tell, and this made him the wilder. He got off his horse and shouted and waved his arms as though he'd do violence. But Annie Bevan just stood with her arms folded looking at him exactly as she looked at the

adjudicator when she was waiting at the Eisteddfod for his summing-up.

In the meantime the others had come up, and one of the farmers could hardly hide the grin on his face as he winked at Thomas Cornelius, as much as to say: 'Trefor's caught worse than a fox by here, and he must be drunk not to see it.' For Annie had really got going, and was whipping Trefor Matthias like a small boy: 'Shame on you, wasting your time chasing a helpless thing like that. A great big, useless hulk of a man like you with a foul mouth into the bargain. Fitter if you put your feet back into those pedals—or whatever you call them—and take your horse home and thank the saints you've not got to steal to get your bread like this bit of a fox here.' Annie got on to her hindlegs properly, sticking up for the fox like a sister, though it was only last spring she was calling him all the names she could lay tongue to after he'd frightened her hens so that they went broody for a month.

Well, the end of it was that Trefor Matthias got back on his horse, leaving Annie Bevan still standing where and how she stood before. As he went off, she called out over her shoulder: 'Come on out now, Cassie. There's a good girl. There's nothing to be afraid of.'

TREFOR MATTHIAS went home, and though he didn't stop hunting altogether, he didn't have the heart to hunt round Llwyncelyn after Annie's bit of mothering. Which was really good sense, for, as the Cwmglog huntsman said: 'If the fox gets his nose headed for that place, we may as well call it a day and take the dogs home to their gravy. Somebody down there has a fellow-feeling for foxes and keeps a place warm for them—maybe in their spare bedroom.'

But there was another sequel to matters on that October morning—the fox got away when all the shouting had died down; and a few nights later he visited Annie Bevan again. This time he carried off one of her best Rhode Island Reds. A fine business! Yet, when you come to think of it, he was only using a friend's privilege—for the little fox was sure she couldn't be cross after he had heard all the nice things she was saying about him.



Killing the Winter's Meat

R. N. STEWART

ONE afternoon in early October two men stood on a desolate shore on the north bank of the river Yukon—one of them an Indian, the other a white man. They waved to the Northern Commercial Company's boat slowly making her way upstream on the last voyage of the season. They had just left her warm cabin and been-dumped on this bleak shore at the mouth of a small creek. The miscellany of packages lying around made the scene even more desolate than it had been before their arrival. Soon the little stern-wheeler was round a bend and the faint sighing noise of her engine was no longer audible. Silence and solitude alone remained.

These two men had a task before them. They were here to kill the winter's meat for the hospital at Fort Yukon. The packages consisted of weapons and ammunition, food, a tent, sleeping-ropes, a Yukon stove, two axes, a canvas canoe, and a heavy bag of ten-inch nails. They were dressed in mackinaws, breeches, and miners' boots.

Their first concern was to establish the camp. The weather was fine, but the days were already shortening and the evenings chilly, with several degrees of frost at night. The place selected was known to them to be on the migration line of the caribou, their principal quarry. The site of the camp beside the small nameless tributary gave shelter and a supply of clear water. Yukon water is dirty at all seasons, though drinkable.

Their equipment was sufficient to last them some eight weeks with care, though they did

not expect to be more than three to four weeks on the job. The odd item of ten-inch nails was for building the raft required to carry the meat and themselves the 400 miles down the Yukon to Fort Yukon. Indeed, these nails were of vital importance.

The countryside was typical of the Upper Yukon valley—a flat plain on each side of the river, much of it covered with jack-pine and swampy in the open places. These swampy bits were a confusion of niggerheads—tufts of hummocky grass which give no secure foothold. About a mile beyond the plain on each bank hills rise to nearly 1000 feet. They are destitute of trees, but grass and lichen grow on their lower slopes; above is bare rock and moss. At this latitude there are still sufficiently large pine-trees on the plain for making a raft.

Before darkness had fallen the tent was pitched, the stove lit, and a meal was in preparation. It was too late to do any hunting.

AT six next morning Isaiah, the Indian, got up, lit the stove, drew water from the creek, and set going the breakfast. Though still dark, an early start was prudent, to see where the caribou would make their crossing of the river. This fact had an important bearing on the course to be pursued, because any animals killed away from the river's bank had to be carried on the men's backs to the raft. A full-grown caribou stag will dress 200 lb. of meat without gralloch and head, and, as the route through timber or over

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niggerheads is peculiarly tiring, every effort is made to find game near the river.

All that morning the caribou kept well away from the river, and by midday both men were becoming impatient. So after a hasty meal it was decided to go inland and to stalk a very fine stag about a mile away. The stalk was easy and the two men 'got in' without difficulty, shot the stag and a smaller one. Both stags were then skinned and cut up, and the two men loaded themselves with what they thought could be conveniently carried. The niggerheads were worse than had been expected and became so bad that some of the load had to be put aside and cached for another journey. It took the rest of the day to carry the reduced load to camp.

Early next morning they went to bring in the rest. During the night, however, a black bear had discovered the meat and was still in possession when Isaiah, who was leading, arrived. It was thought better not to shoot the bear, good as bear-meat is, for its death would have meant more work and loss of time in humping it out. The bear was scared away and what portions of the meat he had left unsoiled were taken to camp.

That evening some of the caribou began to cross the river about half-a-mile downstream from the camp. There were by now great numbers of them, and as many as eight to nine hundred could be seen. This was clearly the normal annual migration.

During the next few days thirty-five caribou were shot by the water's edge or close to it. As has been said, the object of the expedition was to kill meat for the hospital at Fort Yukon, and enough of it to last till the following October. There is no other source of supply but the wild game of the country. This being so, few of the ethics of sport are observed. A fat young hind or a well-grown calf are both good meat, and if either were in shot, and no bigger stag available, both ran the risk of being killed. A cow moose fell victim to this necessity. It was essential to keep the meat near the camp to prevent marauding bears from stealing it. The weather presented no problem: it was already cool enough to prevent deterioration.

THE building of the raft was great fun, the only difficulty being to find dry logs of the size two men could handle, near enough to the river. Sixteen logs were collected and

trimmed. They were fastened together by cross members of lighter timber. In the centre a platform of round poles was built to carry the meat. It was imperative to keep it dry. On the forward end of this platform a shelter was constructed to house the men and the stove. Three crutches were made for the sweeps, one aft and two amidships. The sweeps were made from thin poles roughly fashioned with an axe; they were about 24 feet in length. The raft never answered well to the action of the sweeps and their use entailed much labour.

The Yukon is a big river and at this point is some 1200 yards wide, running at five to six knots an hour. Once in the stream, it took considerable effort on the sweeps to bring the craft to shore. A landing had to be fixed on well in advance, as it sometimes took forty minutes to beach the craft.

THE men left the first camp-site one morning just as dawn was breaking. Some alteration to the loading was needed to trim the raft; otherwise there were no difficulties.

To drift down the Yukon on a raft is a deliciously tranquil sensation. There is absolute silence. The raft travels noiselessly at the speed of the current. Once adrift on the river a period of complete idleness is possible. There is no need to navigate. The raft rounds bends in the river by means of the current alone. All the wild game are unaware of your approach and, if by the bank, look up in startled amaze to see such a strange piece of flotsam adrift on the river. Were it not for the smoke from the stove-pipe it is unlikely that they would move away. As it is, the smoke indicates the presence of man and they take refuge in the forest or undergrowth till the danger is past. Bears, lynx, wolves, moose, and other kinds of game were seen.

It is not advisable to travel after dark on a raft, so during the later afternoon some concern was felt about selecting a camp-site. The choice had to be made on the result of a distant view. Once a place ahead looked promising, the sweeps were shipped and the raft rowed to the selected site. Such a site must have a shelving beach, slack water near its shore, and preferably a small tributary stream. The slack water is of first importance, because it is not prudent to allow the raft to swing, snubbed by a single line, at the mercy of a fast current.

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The days passed very pleasantly and the store of meat was added to by a few extra caribou, two moose, and a bear. For many miles downstream from Nation, some distance above the first camp-site, the course of the river is smooth and constant, and no rapids intervene. But a few miles above Circle there is some rough water that may be troublesome. A raft built in the fashion of this one is no vessel on which to traverse broken or even lumpy water.

After Circle come the Yukon Flats, 100 miles in length. Through this section the river splits into numerous channels, many of which have dead ends. It is essential to select the right channel, as it is difficult to extricate a raft from a cul-de-sac of several miles in length. The navigation in the Flats is not easy, since the channels change from year to year, depending on the course taken by the ice during the spring thaw. The river here is close on 4 miles wide.

The two men stayed at Circle, spending

the night in the road-house, ate moose tongue (considered a great delicacy), and went to a dance. Circle has the reputation of being the largest log-cabin city in the world. There are fifteen hundred cabins and only fifty inhabitants. The overhousing is a relic of one of the early gold-rushes.

Isaiah's home is some 30 miles downstream from Circle, so the first part of the passage was easy, as he knew the right channels. After that, a constant watch had to be kept to see that no error was made. Due to the widening of the river through the Flats the current is slower. The passage takes almost five days. On arrival at Fort Yukon the meat is at once put into holes in the ground, where the temperature is always below freezing-point. There it remains till required.

Killing the winter's meat is not a sport. It is a serious business. The shooting ceases to be fun, as those doing it become butchers in a humane cause, but the rest of the trip is a wonderful experience.



The Charm of Wood Fires

W. MASON-OWEN

DURING autumn and winter, when the weather is at its worst, nothing is quite so comforting as a good wood fire, and few of us can resist its charms. Its cheerful warmth, dancing flames, and sweet perfume make family gatherings and staying at home a pleasure. Log fires can, however, be exactly the opposite. Who can imagine anything more miserable or depressing than the fire that smoulders and smokes in a wretched, gloomy sort of way?

Volumes have been written on the art of making wood fires, but much remains to be

learned, especially by those townsmen who know little or nothing of the virtues of the various woods.

The real secret of a good log fire lies in the proper laying of the right kinds of wood, but with a little practice this art can easily be acquired. There is a wealth of truth in that old saying: 'One log *can't* burn, two logs *won't* burn, three logs *may* burn, four logs *will* burn, five logs make a good hot fire.' When laying the fire, first put paper, twigs, and small wood chips at the bottom of the grate. Then place a short log each side of the grate, laying

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half-a-dozen good logs across them. To get the greatest heat out of them, logs should always be laid horizontally.

When replenishing the fire, fresh logs should be placed at the back of the hearth, but never put a thick one atop a thin one, otherwise it will fall out and probably set fire to the rug or carpet. Logs rolled in damp coal-dust burn brightly from the start, and a little melted tallow helps the most lifeless wood fires.

Wood makes an excellent fire when burned on its own and, with one or two exceptions, should not be mixed with coal or other fuels. For those of us, however, who look to logs to eke out the meagre coal ration it is encouraging to know that two-thirds logs makes a really good hot fire if banked up with some other slow-burning fuel. Coal-dust, small coke, and peat are all admirable here, especially the last, for wood and peat both turn to clean ash—and their combined fragrance is enchanting.

WE could easily spend half our allotted span learning about the virtues and drawbacks of the various woods—whether they should be left to season or be burned when freshly cut; their spark danger, their heat production, their weight per cubic foot, and their delightful odours.

From twenty years' experience of trees, logs, and wood fires I have found that woods of equal dryness produce a heat in proportion to their weight. Thus, the heavier the wood, the greater its value as fuel and, a point worth remembering, the greater its economy of storage space: two tons of good hardwood take up the same space as four to five tons of coal.

Although the popular view is that good British oak is the best of all woods for burning, few woods, if treated in the right way, have no virtues. Oak has won its claim to being the finest of wood fuels owing to its steady, fierce heat and slow combustion. It is, as most of us know, the traditional wood of the yule-log, owing no doubt to its special merit of keeping alight for many days and nights. It is quite safe to leave an oak fire, for it never sparks; it just burns merrily away into a light, thin ash.

Ash is an excellent wood and, according to the familiar jingle,

*Ash wet or ash dry,
A queen shall warm her slippers by.*

It should be burned without standing to season, for dry ash blazes away all too quickly. Used when green, however, ash logs are long-lasting and radiate intense heat.

Of all the native hardwoods growing wild, beech is considered to be the best all-round fuel, although newly-cut beech logs can be dangerous from their nasty habit of spluttering and spraying the room with burning fragments. Beech logs are best after seasoning for at least a year, and should be stacked carefully, so that air may circulate throughout the pile. A properly constructed and covered stack prevents the logs getting damp and becoming insect- and fungus-ridden.

Another wood which sparks profusely, unless it is seasoned for twelve months, is poplar. Like willow, poplar often produces clouds of acrid smoke; both woods burn better with coal than they do alone.

Elm, too, is black-listed by many, but despite the prejudices against it, the despised tree has many virtues that are too often overlooked. Although it is not the best of burning woods, elm, if cut at once and stacked for two years, burns brightly and cheerfully. Elm never flames, neither does it spark, and, once alight, it never goes out. If it is at all damp it needs lesser, quick-burning logs to keep it company, and gives good solid body to a coal fire.

Blackthorn is said to be the hottest of all our native woods. And another heat-producer, which also burns well and gives off little smoke, is hawthorn, the wood that 'bakes the sweetest bread.' Hazel and laurel are both worth gathering, but lime has no outstanding merits. Sycamore and maple can be confidently recommended. Sycamore is one of the easiest woods to reduce to the log state: trunks are easily split with one or two blows from the wedge, and the saw goes through the wood quite easily. Such logs should be dried under cover before use; they then make a good warm fire. Maple, although of the same family, is not as good as its better-known sister, sycamore. Another close relative, the plane tree, yields logs that are first-class for a cheerful, hot fire.

Holly is the nearest rival to oak for slow, steady burning; in addition, it gives a lasting heat. Yew, like holly, is slow-growing, and its wood, naturally, is extremely tough. It needs two to three years' seasoning to be at its best for burning. It is a slow burner, but gives off an intense heat. So, also, does the

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wood of the laburnum: even the greenest and thickest logs burn up as briskly as autumn-gathered pine-cones. Incidentally, the latter make first-rate fire-lighters.

That good king, Wenceslas, chose pine logs for his fire. And very wise, too, for they make a merry blaze, although they burn too rapidly to be economical and have a bad reputation for spitting sparks all over the room. Pine, like birch, larch, and fir, are all excellent for kindling. All throw out a great heat, and all are sweet-smelling as well.

MOST woods while burning give off their own distinctive odour. Oak has a strong musty smell; cherrywood reminds us of blackberry bushes after rain; birch is reminiscent of freshly-mown grass; while poplar smells like acid-drops. Cypress, walnut, apple, pear, and plum are all favourites because of their pleasant smell when burning, and all give off a greater heat than coal. But of all the garden trees none can compare with the old lilac trunk when it comes to pleasing perfume. Logs hewn from such a tree burn extremely well and have an aroma almost as delightful as that of driftwood.

Every wood burner knows that sparks can make ugly holes in a carpet, rug, or an arm-

chair cover. Sparks have, on numerous occasions, been responsible for setting fire to both country cottages and stately mansions. Ash, apple, beech, elm, hawthorn, oak, and walnut, if treated correctly, are non-sparking. The resinous pines—particularly the Scottish fir and Norwegian spruce—the willow, and Spanish chestnut are real crackerjacks and need constant attention, as log fire lovers will already appreciate.

What is not generally known, however, is that wood—especially if it contains resin, or green wood which still has the sap in it—leaves a tarry deposit in the chimney that will not yield to the chimneysweep's brush. According to the Fire Protection Association, this thick coating will burn more fiercely than soot if a stray spark sets it alight. The Association recommends that if wood is burned almost exclusively for any length of time the chimney should be cleaned and scraped more often than if coal only were used.

Neither sparks nor chimney fires, however, need be dangerous if the necessary precautions are taken. And they need not belittle the joys and charms of the good log fire. May it never give way completely to the grim radiators, soulless gas-fires, and 'cold' electric heaters of modern homes and hotels.

Chopping Wood

*When I am feeling angry with the world
Because of man's hostility to man,
Or through some irritation that is curled
Within my mind, the failure of a plan
I had conceived but never brought to birth,
A song unsung that curdled in the bud;
When tired of winter and the cold wet earth
And hungry for spring sunlight in my blood—
On dead days such as these I turn to chopping wood,
And deeply feel, in this familiar task,
New lissom life, a strange beatitude
In what I break, as though the elm logs ask
For this destruction. The white splinters fly
About the shed as the bright axe I wield,
And soon the shining piles of firewood lie
Ready for burning. Once the summer field
Held their blithe singing when I with them spoke;
Now, when they blaze, their sacrifice recalls
The vanished days, and days to come; their smoke
Sweetens the winds that wail about these walls.*

DOUGLAS GIBSON.



Desert Bond

ROBIN MAUGHAM

IV

[I, II, and III—In the fighting in the Western Desert Sir David Holland, Bart., was reported missing and then presumed killed. But three years after the end of the war comes word of him in the form of a promissory note drawn by him, for help received, in favour of Salem Ben Youssef, Sheikh of the Senussi Beduin Hiwari tribe. To satisfy himself about the fate of Holland, Major Dawson, his friend and the teller of the story, sets off to visit the Hiwari, accompanied by a guide, Ali. Dawson is told by the Sheikh that the wounded Holland found shelter with the tribe and that on departing after recovery he left the promissory note; and for himself he discovers that the Sheikh's daughter Mabrouka has a child that is clearly Holland's son. Dawson leaves the encampment, and as he is going, Mabrouka throws into his hands a diary of Holland's. It tells of Holland's escape, wounded, from the enemy, of his rescue by the Hiwari, of his nursing by Mabrouka, of his love for her and his marriage of her when he learns she is with child by him, of his departure to rejoin the British lines, having first made and left behind a will providing for Mabrouka and the child, and of his charging his friends, should he fail to reach safety, to do their utmost for the happiness of his wife and child.]

I READ the diary once again. Then I lit my pipe and lay on my back in the sand, thinking.

I had thought that I knew David. But the

person who emerged from the diary was almost a stranger to me. Even its style surprised me—though I recalled that he had never written me a letter. I supposed that his narrow escape from death and his three months in the Beduin tents had changed him. That and his love for Mabrouka. I don't think he had ever been in love before.

Yet, though he had changed, the essential remained. The 'directness' was still there. There was no deflection in his response to all that had happened. There was the same quixotic approach to life. Also his trust in me had not altered. They were his legacy to me—those words asking me to look after Mabrouka and his child. He had left the final decision to me, and I must now make it, for I was convinced for the first time that David was dead. Neither he nor Khalil had survived the journey.

I thought next about Salem and his daughter and grandson. Why when I first spoke of David did Salem's attitude change to suspicion? David had taken Mabrouka as his wife. There could be no shame. Why, then, had he become hostile? It could only be because he was afraid that I would take the child away from them. Why, then, had Mabrouka given me the diary? Either from loyalty to David or because she wanted me to know that she and her child had a legacy. Which?

I knew enough law to realise that it was doubtful whether David's title would pass to his son (it was an amusing thought that the

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half-naked little Beduin I'd seen hopping across the camp might be a baronet), but one thing was certain—David had made a soldier's will that night. If that will was still in existence it would be valid. Mabrouka would inherit what he had left her. David had suggested it was sufficient not only to pay for his child's education in England, but also for her to live in England, or to travel to and fro.

Before I returned to their camp I was determined to try to find the answer to four questions. First: Did Sheikh Salem want his daughter or her son to go to England? The answer was certainly, no. Second: Did Mabrouka want to accompany her son to England? I doubted it. Third: Did she want him to go? I was uncertain. Last, and most important, for the ultimate decision was mine: Did I want David's son (I did not even know his name) to be brought up in England? Yes. Certainly yes. I remember David's words: 'Even if the war lasts another four years my child will still be young enough to adapt.' He was still easily young enough. David had said that he wanted his child taken to England, and then had been doubtful—probably because he had been thinking of Mabrouka. The difficulty could be solved somehow. The important thing was to get hold of the will and then to remove the child into civilised surroundings. My mind was made up. I still, however, did not know how I would be received when I returned to Salem's camp. I decided to write Baring a short note in case there was trouble.

I shouted to Ali, who was lying asleep five hundred yards away. He came up to me sulkily. 'Ali,' I said. 'It's now midday. I'm walking back to the camp. You have food and water and bedding. I am leaving you here. You will not move from this spot. If I have not returned by midday to-morrow, you will go straight back to El Adem and give this note to Khawaga Baring. Do you understand?'

'But why should I not come with you to the camp?'

'Because I must go alone.' I repeated my orders and left him more confused and sulky than ever.

WHEN I reached the camp I walked straight to Salem's tent. The loud barking of the dogs had forewarned him of a visitor, and he was standing outside, watching

me approach without surprise. He replied to my greeting, but did not invite me into his tent. 'I have come alone, and I want to speak with you alone,' I said.

'You can speak. There is no one to hear us.'

'I have read the diary of my friend David. I know that he married your daughter. I know that the child I saw was his son. I know that you have got the will he made giving money to your daughter before he started on his journey with your brother. I want to do what is best for all of you. I come as a friend, not as an enemy.'

'You wish to do what is best for all of us?'

'Yes.'

'Then you will go now and forget you ever came here.'

'You will not even listen to what I have to say?'

He looked at me in silence. Then he turned round towards the tent. 'Enter,' he said.

We sat down alone beside the fire. 'May I ask you a question which may hurt you?' I began.

'Speak.'

'Your brother never returned?'

'No.'

'What do you think happened?'

He looked out dreamily across the desert. 'How can we tell?' he said. 'It was a long journey. Perhaps they were shot. Perhaps they died of thirst. Who can tell, save God?'

'It was noble of your brother to go with him.'

'He was our friend.'

'Then why would you not speak of him?'

'Because we knew you would want to take the child Daoud away from us. That we cannot accept. The child belongs to Mabrouka. He is all that is dearest to her in the world.'

'Could she not come too?'

'And leave her own people, and the man who is now her husband, to live in a strange land? No.'

'The child could come back to her sometimes.'

'If he left us now he would belong to your people. He would wear your clothes and take on the clothes of your mind and your belief. He could not return to us.'

'Why not? Are we so far apart?'

'As far as the stars from the sand.'

In the silence after his words I offered him

a cigarette, but as usual he refused. 'May I see David's will?' I asked.

'Certainly, but you may not keep it.'

He rose and walked into the other half of the tent. Through the curtain of black cloth dividing us I could hear the sound of a box being unlocked and opened. He returned with a page torn from an army notebook and neatly folded as the promissory note for twenty pounds had been. I opened it and read it carefully. There was no hitch, no ambiguity. David had left Mabrouka, or his child, should Mabrouka die in childbirth, ten thousand pounds. I handed the paper back to Salem. 'The other page you had like this,' I said, 'brought you twenty pounds. If I send this page to London, it will bring Mabrouka ten thousand.'

He was silent.

'Do you realise what that could mean for Daoud, your grandson? What future is there for him here? He will lead the same life, day after day in this desert, until he dies. But with this money he could go to England as his father intended. He could go to school and to a university. And he would be free to take up whatever profession he chose. The whole world would lie before him.'

'Would he be happier and better than if he stayed here?'

'Certainly.'

'You from the West are very sure that you have much to offer us. You think we are ignorant and simple. You have cleverness and skill and wealth. But where has it brought you? Are you any closer to happiness or to God than we? Have you any more freedom? You say the world would lie at his feet. We say that the world is a poison which poisons the soul of man gradually.'

I can't remember what I said in reply, nor all the various phases of our argument. But at last I realised that I was making no progress against the mound of his prejudice. I played my next card. 'The money belongs by law to Mabrouka,' I said. 'If she wishes to accept it, would you object? If she wishes to send Daoud to England, would you try to prevent it?'

'It is her money and her child. I would not interfere.'

'May I see Mabrouka?'

'I will bring her to you.'

tent. Beduin girls age quickly. But even now as I watched her across the fire I could understand why David loved her. Her limbs and body were still wonderfully slender, and her broad forehead and large brown eyes and delicate lips made her look at once innocent and appealing. There was something very sweet and graceful about her as she sat beside her father, glancing at me timidly.

I explained to her that David had asked me in his diary to help her and her son. I told her that he had left her a large sum of money. I begged her to let me make arrangements for Daoud at least to go to England. 'If you do not wish to come,' I said, 'we must arrange for you to meet Daoud whenever possible.'

Then once again I explained all the advantages of sending him to England. I told her that David had asked me to advise her and that I advised she should let her son go. When I had finished she turned to her father. I could see that the mention of David's name had moved her. 'I know little of his people or his country,' she said. 'I know only what he told me when he was with me. I cannot say yes or no. You, father, must decide.' Even as she spoke the tears filled her eyes.

'I, too, know little, my child,' her father said softly.

'You must decide,' she repeated. Suddenly she began sobbing and ran out of the tent.

Salem threw some camel-grass on to the fire and watched the flames leap up before he spoke. 'When you came I did not trust you. I trust you now. I know you are not thinking of your own benefit. You must believe that I am not thinking of mine. I want to think over what you have said. You have told me you must return north to-morrow. It is now an hour before sunset. If you will return here soon after the sun has set I will let you know my decision.'

'Where can I find Daoud? I would like to be with him,' I said.

'He is out with the flocks. I will show you where you can find him. But I must tell you that he believes Mabrouka's husband now is his father. It is better so. You must promise me you will not speak to him of your friend.'

'I promise.'

The Sheikh showed me where the flocks were cropping, and I left him.

A FEW minutes later Salem returned, and Mabrouka followed him shyly into the

AS I wandered slowly from the camp I supposed that Salem was trying to under-

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stand what I had said, to perceive the reasons for my arguments, to discover what philosophy lay behind them. And I determined that I, too, must try to appreciate the background of his attitude.

The nomad's way of life demands toughness of mind and body. To glean an existence from the barren desert, to take advantage of the scanty grazing where rains have fallen, requires as much freedom of movement as a ship on the seas, and as much decision.

The Beduin in their sea of sand have remained aloof from the invasions by force and by thought which have surged across the world since the days of Mohammed. Sometimes they have become involved and perished. But the survivors have withdrawn into the remoteness of the desert and preserved intact their way of life. And therein lies the clue.

The Galilean peasants were protected from disturbance by the power of the Roman Empire. Their society was simple and gracious, fortunately ignorant of the complicated power-mechanism which protected it. In their ignorance of the outside world, in their intelligence and concern with God, the Galileans resembled the Beduin. They sprang from the same stock.

It is no coincidence that two great religions came from the stillness and simplicity of the desert. It is no coincidence that they found roots amongst people protected from the turmoils of the world, the one by the power of an empire, the other by an ocean of sand. And perhaps, I thought to myself, in as much as they have remained largely thus protected—even though their ocean is no longer impassable—perhaps the Beduin have preserved their religion more purely. Then, from the back of my mind came a phrase which I remembered from Gibbon, of all people: 'The slaves of domestic tyranny may vainly exult in their national independence. But the Arab is personally free.'

I found Daoud looking after a dozen goats. He was very shy when I went up to him, so I sat down and began playing with sticks in the sand, and presently he joined me. He had Mabrouka's forehead and lips, but his nose and firm chin and his very blue eyes were David's. Sometimes the resemblance between the two was so great that I could imagine it was David dressed up as a Beduin child. There was the same look of impudence, the same smile, the same vitality. He

was radiant with health. And as we began playing our game with sticks I noticed that he was alert and intelligent. I was entranced by him, and he seemed to like me.

There was so much that I longed to say to him. 'How would you like to go to England?' I wanted to say. 'How would you like me to be your guardian?' All kinds of stupid words came into my mind. But we talked about his goats and the camels, and soon it was time for him to drive back his little flock.

I had noticed that he was fascinated by my cigarette-lighter, and when we reached the camp I gave it him. He played with it for a moment and then handed it back to me. 'No,' I said. 'It's a present.'

His eyes opened wide as I handed it to him. 'For me?' he asked.

'Yes. To keep.'

'Thank you, thank you,' he said, suddenly becoming shy again. Then he turned away and drove his goats towards his mother's tent, clutching the lighter in his hand.

THE sun had set and a bitterly cold wind was blowing as I walked towards Salem's tent. He was alone. 'Welcome,' he said. 'Sit down there close to the fire.' Though he had drawn his robe tight round him, he was shivering. 'Food is ready,' he said. 'That will warm us.'

We did not speak until we had eaten and were sipping tea. 'We are grateful to you, Mabrouka and I,' he said in his clear deep voice. 'You have come a long way to see us.'

'I am glad I came.'

'You are now our friend. Yet we cannot understand you, or you us.'

'If Daoud came to England, yet returned here when possible, he could understand us both.'

'If he had known wealth and comfort, would he understand the way we live? If he had been taught your ideas day after day, would he understand ours? No. He would despise us. He would see that our life was bare. He would not see what lies behind it. For only living here as we do can a man perceive what is hidden.'

'Did David despise you?'

'Does not your guide Ali despise us?'

'Aren't you willing to take the risk?'

'It is not my happiness which is at stake.'

'How can you tell what happiness and freedom of mind Daoud might find with us.'

FIRE-WALKING IN CEYLON

'I cannot be sure. Whatever my decision I should always fear I was mistaken.'

'Then you have not decided?'

Salem produced the neatly-folded page from the army notebook and looked at it. 'I should always doubt my decision if I did not believe in God,' he said. 'But I know that if the child stays here he will be close to God.' Then with a gesture so slow and unhurried that I did not at first see what he was about to do, he took the page and dropped it into the middle of the fire. Instinctively I stretched forward to save it, but he grasped

my arm, and before I could shake myself free the page was burnt.

'Do you realise what you've done?' I cried. 'You've destroyed his chance of freedom.'

He turned his face away from me and moved towards the opening of the tent. The wind which had swept across a thousand miles of desert was blowing hard against us. For a while he stayed still with the wind lashing round him. 'There is our freedom,' he said.

As I left their camp soon after dawn the next morning to rejoin Ali I saw Daoud walking beside his goats in the rising sun.



Fire-Walking in Ceylon

S. V. O. SOMANADER, F.R.G.S.

SOME twenty-three miles from my town, Batticaloa, in eastern Ceylon, is the village of Pandiruppu, a place of peculiar interest to those with a mystic turn of mind. Here, as in other villages, like Palugamam, of Ceylon's east coast, is enacted annually the pageant of the Pandavas performing the purification ceremonies after the long and fierce battle of Kurukshatra, as recorded in the great Hindu epic of the *Mahabharata*. And so famous has the place become that huge crowds visit the temple of the goddess Draupadi to witness the awe-inspiring feat of fire-walking.

Incidentally, it may be mentioned that this place has also a reputation for pretty women, pottery of perfect workmanship, and jewellery of gold and silver. The seething mass of humanity which fills the temple precincts is, therefore, composed not only of worshippers, but also of admirers, buyers, and sellers. The long rows of stalls, exposing for sale all varieties of local, and sometimes Indian,

products, and the innumerable booths erected for sideshows, such as musical performances, magical entertainments, acrobatic parties, and the like, lend a peculiar glamour to the main religious ceremonies or 'poojas' which take place in the temple sanctum, and which eventually terminate with the bath and the fire-walk.

The veneration in which Draupadi is held by the people locally is so great that, from the new-moon day of Avani (August), the entire village gives up fish and meat. Further, every householder also exercises the most scrupulous care in keeping his person and premises clean and pure. Margosa leaves, powdered turmeric, and the smoke of benzoin indicate in every village home the sanctity of the event to come, and even the little children refrain from indulging in games which entail loud noise. No paddy is husked, and no rice is pounded into flour, lest the sound of the mortar and pestle disturb the deities assembled in the temple.

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Five persons of the village, noted for their piety and general good behaviour, are now selected to fill the roles of Draupadi, Yudishtra, Arjuna, Nakula, and Sakadeva, and the five impersonators are taken to the temple, where they are first initiated into the mysteries of the ceremony.

The preliminary rite of 'Sangatpam,' which means 'determination to go through the entire ritual,' is then performed, a band of yellow thread around the right arm being the external symbol of the resolve. The selected men have to remain in the temple throughout, observing strictly the rules enjoined on such devotees from time immemorial. They eat, for instance, but a single meal a day, and spend the greater part of the night listening to the story of the *Mahabharata*.

This story, by the way, has such a firm grip on the minds of the people that one may see men and women, with bent heads and folded arms, sitting up the livelong night listening rapturously to every word and verse. And the 'poosari' or officiating priest himself, a person of great piety, performs 'poojas' or rites three times a day, invoking the goddess Draupadi to shower her blessings on the land, and to render immune her humble servants from the effects of fire.

The *Mahabharata*, as composed by Vyasa, the great sage, is a lengthy poem dealing with the origin of the Pandavas and the Kauravas; the long-standing feud which existed between these two clans; the marriage of the Pandava brothers to Draupadi, the Panchola princess, supposed to be an avatar of Kali, the Holy Mother; the disastrous game of dice, which resulted in the banishment of the sons of Pandu for twelve years; the return from the exile; the battle of Kurukshatra, which lasted for eighteen days; and the triumphant entry of the conquerors into Hastinapura, the capital of the kingdom.

The purification by fire celebrated in the temple of Draupadi is an event which took place just after the Kurukshatra battle and immediately preceding the triumphal march, and was a special rite observed by the victors in honour of Agni, the God of Fire, who purifies those whose souls are tainted with the slaughter of millions on the battlefield. This rite is also symbolical of the purification which the human soul has to undergo on entering Heaven after the battles of life. In fact, for this reason, the *Mahabharata* may be regarded

as having a deep and splendid esoteric meaning, apart altogether from the enthralling narrative it contains. It is a book running into several hundred chapters, but the fire-walking worshippers of Draupadi leave out the earlier parts and begin only from the exile, laying much stress on the purification aspect of the epic.

THREE days before the fire-bath, the 'Vana-vasam' is enacted, in which Bhima, attended by a few devil-dancers, sets out scouring the village, plucking a jak here, and a bunch of plantain bananas there, representing, thereby, the mode of life led by the Pandavas during their twelve-years' exile. Nobody raises any objection when the party of foragers carry off even the best produce of the garden, for, is it not Bhima, the Valiant, collecting provisions for Draupadi, the exiled goddess?

It is really a sight to see the giant Bhima, with his 'thanda-yutham' in hand, leading the way, and also to watch one or two devil-dancers, with swords and knives, cutting down garden produce. Interesting, too, is it to observe a goodly retinue of menials, with bags and baskets, receiving the spoils, and a group of urchins shouting at the top of their voices, as if that clamour were needed to give the stimulus to the whole party. All day long this pageant of jungle life is enacted, and 'at dusk the company return with the booty, first offering it to Draupadi as sacrifice, and then sharing it among themselves.

The next noteworthy ceremony is the 'Tapasu-nillai' of Arjuna, the scene showing the severe austerities practised by Arjuna to receive from Siva the invincible arrow, called 'Pasupathastram,' with which to overcome his brother Karna, who, having joined the enemy from childhood, had vowed to kill Arjuna with his famous 'nagastram.'

A tall pole, with a cage on the top, is fixed firmly in the ground, and Arjuna, in the attire of an ascetic, mounts the pole, and, taking his seat in the cage, prays to Siva so earnestly that the god comes down to earth to test Arjuna's faith and grant the boon. One of the gods of Indra was made to take on the form of a wild boar, and was instructed to rush up to Arjuna and beg for protection from his pursuers. The hermit, in spite of the severe self-abnegation and meditation, came down from the cage, and offered

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absolute protection against anybody, were he even Siva himself.

At this stage, Siva appeared in the guise of a Veddah, and, espying the object of his chase, demanded the immediate release of the animal. Arjuna mildly pointed out that he had promised protection to the poor animal, and that he would not go back on his word. The 'Veddah' then started railing at him in such provoking language that Arjuna lost his temper and gave the 'Veddah' a blow with his bow. Immediately, the 'Veddah' disappeared, and so did the boar. Arjuna then realised that the 'Veddah' was Siva, and, in a penitential mood, he sang the famous 'Pathum-pathyum,' at which Siva appeared before him and granted him the desired 'astram' and the connected 'mantram.'

THE last and most important ceremony begins the next day. A pit, about 12 feet long, 6 feet broad, and 3 or 4 feet deep, which has been previously dug and filled with cartloads of dry logs of wood—generally the wood of the 'Veera' tree (*Hemicylia sepiaria*)—exactly facing the temple, is consecrated by the officiating priest who invokes Bhairava Veerapathura, Kali, and other guardian deities to mount guard over the pit, to drive out any malignant and mischief-minded spirits that may attempt to mar the ceremony, and to protect the fire-walkers from the effects of fire.

Draupadi now takes three betel leaves, three areca nuts, and three plantains, and, placing them in the fold of her sari, walks three times round the pit in the most supplicatory manner, and buries them under the earth in the pit. Followed by the other worshippers, she next sets alight the heap of firewood, and then all return to the temple. This ceremony is watched in such a reverential manner that not a whisper is heard in the vast concourse, for is not this the crucial point of rituals performed in connection with fire-walking?

On the day after the fire-walk, when the fire is extinguished and the buried articles taken out, it is marvellous to see the betel leaves, areca fruits, and plantains remaining quite fresh. Not a trace of the effects of heat is found, and it is this that satisfies the priest that his acts of worship have been accepted by the goddess.

By about three o'clock in the afternoon it will be found that the logs, which had been set fire to by Draupadi, have burnt themselves into big embers, and the workmen, provided with long poles, beat them down into one hard, level, glistening mass of burning coals. So fierce is the heat, and so difficult the business, that the men work in relays, and every few minutes water is poured on their heads and perspiring bodies to cool them. Spectators, too, have to stand at a respectable distance if they are intent on watching the ceremonies, which include the pouring, sometimes by women in fulfilment of their vows, of pots and pots of turmeric mixed with water into big tubs or iron drums for 'bathing' those who prepare the burning fire-pit and for dashing on the fire-walkers later on, after they have gone through the ordeal.

When everything is ready, a canopy of white cloth emerges from the temple, and all eyes are strained to catch a glimpse of it. It is Draupadi, heading the procession formed by the Pancha Pandavas for progress to the sea for the 'Theertham' (sacred bath). Before their departure, the devotees go round the temple to the beat of the drum, and one can see the priest's mouth gagged or bandaged, lest anything unholy should get in or come out of it.

The Theertham now takes place, and, on coming out of the water, the bodies of the bathers are thickly daubed with turmeric paste. Among the company is a host of devil-dancers, often numbering two score or more, all literally soaked in turmeric paste, and moving with frenzied shouts and weird cries in the midst of the procession, preceded by the din of tom-tom, conch-shell, and clarion. The devil-dancers tremble and quiver with intense religious emotion, yelling: 'Hah!', 'Hah!' Held tightly in the palms of their hands, and also tucked in the middle of their waists, are bunches of margosa leaves, and their wrists are encircled by 'chilambu' (hollow brass bangles), which provide a sort of rattling music and give the rhythm to their frantic movements.

The devotees, now arriving in the crowded temple premises, first walk rather fast, but, while approaching the pit, they slacken pace, to gather momentum, as it were, for the performance of the terrible ordeal awaiting them. They walk round the pit three times, shrieking in their wild ecstasy, while the priest is engaged in performing certain ceremonies on

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the pit of glowing coals and in uttering incantations.

Now they plunge into their act of torture. It is the moment of moments! Standing in a row or jumbled group, first Draupadi and her followers, and then the other fire-walkers, still shivering with hysterical excitement, plant their feet, one by one, into the burning embers, and walk in measured steps, every footfall showing the ruby-red gleam of the scorching mass of the fire below. And the wonder of it all is that each devotee walks as nonchalantly as he would over a surface of marble, the soles of his feet showing, on examination, no burns or scalds or any other effects of fire.

From the fire-pit the fire-walkers make a dash for the temple, but, before they enter it, they gambol and dance about as if their penance is not quite over. As a finishing touch to the ordeal they have undergone, they receive from the sturdy youths selected from the crowd a number of lashes on their arms and legs to entitle them to the full merits of the penance. The strokes are administered with twisted ropes, or deerhide thongs, when, suddenly, the frenetic spirit appearing to leave them, the fire-walkers fall into a swoon, only to regain normal consciousness after handfuls of water have been dashed on them.

It has been noticed that some of the fire-walkers receive the lashes with great gusto, and seem to relish the thrashing best when given the hardest. If it is not severe enough, they have been known to appeal for more. This form of beating following the fire-walking, is known as 'sattai-adi,' which the spirits require as a mark of their having come to earth from spirit-land; but the wonder of

it is that the lashes do not leave any mark of injury on the skin.

THE long-expected fire-walking is now at an end, and the seething crowd begins to disperse, wondering on the marvels of the day and discussing the underlying force of this most amazing phenomenon. One says that it is the work of the goddess Kali. Another is of opinion that it is the virtue of the magic powder, strewn over the fire before the ordeal, which robs it of the power to scorch, scald, or burn the skin. Yet others suppose that the flowing hair of the immaculate Draupadi, unseen by mortal eyes, is spread over the burning red-hot coals, and enables her loyal and faithful devotees to perform this severe act of penance in her honour and to pass over the fire unscathed. Not a few attribute the marvel to the mastery of mind over matter, believing that the fire-walkers, in their religious fervour, are so 'spiritually-intoxicated' that they are not at all conscious of any bodily pain or physical suffering. But then, sceptics ask, why should not the live coals and hard lashes leave marks of injury?

And so, unable to suggest anything definite and rational to advance or support their theories, the wonder-stricken spectators return to their homes, with a feeling of having witnessed something unaccountable, unfathomable, indefinable, and in the hope that, now that their village has been purified by these acts of penance, no adversity will visit them till the next fire-walking ceremony comes round. After all, to these devout Hindu folks it is that which matters.

John-a-Dreams

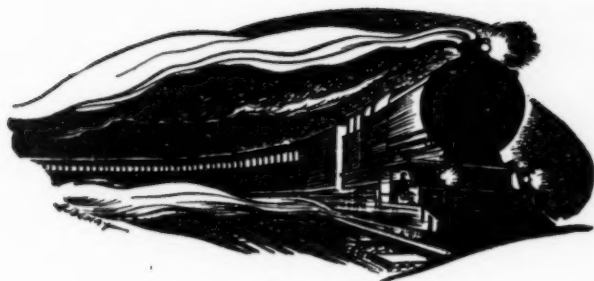
*When I, sad John-a-Dreams,
By byre and barn and fence
Do wander in the beams
Of moonlight, all my sense
Is loud with Why? and Whence?*

*Grey flitter-mice do shriek
And fly the owl. A hinge
Upon a gate doth creak.
Moon-sparkles seem to singe
The thatch's misty fringe.*

*Dropt from the shaken spray,
The fluttered leaves do cry
That I am, even as they,
A leaf beneath the sky
That on a day must die.*

*And when the loud winds rake
The leaves with teeth agrind,
I wonder do I wake,
Or do I wander blind
And ghostly as the wind.*

WILFRID THORLEY.



The Permanent Way

C. M. SWATMAN

TWO bright steel ribbons over which you can travel safely whither you will at racing speed—these ribbons are still a miracle of effectiveness in saving time and shortening distance. The proud engine so completely takes the eye that we never think it can exist solely because it has its cleverly-designed track. The engine is only a part of the whole; engine and track are inseparable.

'The finest permanent way in the world.' I can still see that legend beneath a poster of pre-grouping days. A L.N.W.R. production, the poster simply showed four lines of rails, as a night scene. The slogan is just as true to-day. I doubt if anything we have ever produced is more characteristic of this country than the permanent way. It exemplifies British skill, thoroughness, and insistence on the best possible materials, and it emphasises the brilliant use to which those materials have been put.

Now, the bull-head rail, with chairs and wooden keys, is gradually to give way to the flat-bottomed Vignoles section. That clever paragraphist, Peterborough, in the *Daily Telegraph*, was probably misled by the word 'Vignoles' when he spoke about British Railways 'adopting a foreign section of rail.' He was unjust to the memory of a great civil engineer, whose family, though of Huguenot origin, had been settled in the British Isles for centuries. At the time when he brought out his flat-bottomed rail, in 1837, Vignoles was recognised as one of the leading civil engineers of his day, and his fame was European. He

became widely known for his suspension-bridge at Kiev, which was, for a long time, the largest in the world. The Vignoles rail quickly became popular abroad, and later was adopted in America. It was favoured because it could be spiked direct to the sleepers, saving time and cost, but making a much less thorough job than the bull-head rail. Characteristically, on British Railways, however, the Vignoles rail will *not* rest directly on sleepers, but on metal plates attached to them.

IN earlier, pre-steel, days the lot of the permanent way engineer must have been a hard one, despite the fact that engine and vehicles weighed much less than now. Wrought-iron was the only available material, and it wore out surprisingly fast. When Sir Henry Bessemer produced steel in commercial quantities, from 1856, he solved a pressing track problem. The L.N.W.R. was the first railway to use steel rails—at Crewe, and the first to install Bessemer plant—in Crewe works. Now busy junctions are laid with hard-wearing vanadium-steel rails.

Why are permanent way men called 'plate-layers'? There is romance in the word. It carries one back to the very early days of track-laying, when the collieries transported coal to the wharves in horse-wagons. These wagons, at first, ran on logs laid end to end. The wood wore away quickly, so to meet this iron plates were spiked to the logs. Curiously,

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the earlier G.W.R. track was laid on longitudinal sleepers.

We owe our immunity from railway accidents to the care not only with which the track is laid, but also to its careful maintenance and regular examination; every yard is inspected daily. This is not merely a matter of driving in loosened keys; the plate-layer makes a skilled examination as he walks along. Nor is relaying delayed when due. It is a revelation to watch this operation. Seemingly the gang works slowly; each man's movement is deliberate and unhurried, but it is amazing to see how quickly the job gets done, and the meticulousness with which the new track is aligned and levelled.

There is one track phenomenon, familiar to permanent way men, which seems to contradict the dictum 'action and reaction are equal and opposite.' When the track is double, or quadruple, so that trains use a track in one direction only, the track creeps *forward*—that is, in the same direction as the trains. The explanation is simple, but would never be found by the theorist.

THE permanent way engineer inevitably passes through some very anxious times. Long-continued heavy rain and quickly-melting snow are his worst enemies. Embankments and the sides of cuttings, if wet beyond normal, are liable to slide. Deep drainage is often resorted to. This is done by cutting very deep Y-shaped trenches, and filling them with large stones, through which the water percolates, to be collected by the bottom leg of the Y. Surface-water, at the top of the cutting, which might work down through the soil, can be collected by drains and run off harmlessly.

In the Highlands the permanent way engineer has two other bugbears—miniature avalanches after heavy snowfalls, and the rolling down of large rocks on to the track. On one Highland section of the former L.M.S.R., after an engine had been derailed by a large rock, a system was brought into operation by which falling rocks controlled signals at each end of the section. Rocks

actually fouling the track put the signals at 'danger.'

No doubt the idea that the track is not really 'permanent' would surprise most people. I have lain down by the track-side and kept my attention on the rails, at a joint, as an express has passed. There was a surprising amount of movement, especially at the joint itself. Quite likely, if I had anyone there too, he would wonder, afterwards, if the track was so safe, after all. But it is in just this very movement that safety lies. Resilience is a most important point in track design. There is a modicum of give and elasticity in the ballast, some in the sleepers, more again in the rails. On the first railway in London, the London and Greenwich, the rails were laid on chairs which rested on stone blocks. Axle breakages were common, till the blocks were replaced by wooden sleepers. Track resilience is necessary also to deal with the unsprung weight, a considerable item, of the wheels and axles of engine and rolling-stock.

IT probably will not have occurred to many that railways are preservers of wild-flowers, but it is so. Owing to strict non-trespassing regulations, the flowers can grow untouched, and sometimes present a beautiful sight. How well I remember, in pre-war days, seeing one side of a G.W.R. cutting a blaze of purple, white, and gold. The bank was covered with ox-eye daisies, delightfully intermingled with purple vetch and golden bird's-foot trefoil. As the daffodils recurred to Wordsworth's 'inward eye,' so did this beauty repeat itself to me.

Railways are now old; they have grown old with the countryside, and have become part of it. Nature has laid a healing hand on them; their raw newness has departed. To stand on a bridge in the summer sun and watch those gleaming ribbons sweep away in a graceful curve brings a sense of tranquillity enhanced by the thought that they will take one to the gleaming sea, the tranquil lake, the proud mountain and—yes, to the land of heart's desire.



The Hulk

WILLIAM E. BRUCE

THEY called him the ancient mariner and it was rumoured that, in his younger days, he had been master of his own ship, but such conjectural talk usually surrounds any picturesque old ship's watchman about whom nothing definite is known. Certainly he had been to sea, and, just as certainly, he was master of the hulk where he was now employed, for he was the only person aboard her. His human contacts were few and he remained a mystery and alone.

Not so many years ago he had fairly frequent visitors, for the hulk had been moored with several others off Tierra del Fuego, at the southern tip of South America, to act as a coaling-station. Colliers voyaged to her regularly and discharged their cargoes to be picked up as required by the company's cargo and passenger ships, to carry them through Magellan and across the Pacific to Australia and New Zealand.

Nowadays these vessels made the trip through Panama, or they used oil fuel. Only the hulk remained, her companions having been sold or rotted away. She had once been a fine ship, with masts of Oregon pine that could carry royals. Now, just the hull and the stumps of masts remained. The only sign of

her former glory was the battered and unrecognisable winged figurehead. They still kept her supplied with coal, but it was almost solely for emergencies. A naval patrol visited her regularly for a routine check-up.

Generally the young naval officer who put off to her in his ship's boat had to find his own way aboard and shake the old man dozing on the remains of the poop.

The old man was older than any man could remember, with a line in his face for every year of his age. Hair sprouted from facial furrows, shading the dull grey eyes and forming a white halo around the bald pate, tanned by wind and sun. A benign old man at peace with the world.

The young officer usually brought him a gift of tobacco and a bottle of rum and recounted events in a world whose joys and sorrows no longer interested the old fellow.

Just now the old watchman was doing a bit of work polishing what bits of brasswork he could find. High above, pinned in the sky, a ship could be seen, though no vessel was yet visible on the waters. The mirage was commonplace, unheeded by the old man busy getting the hulk shipshape, for a visit from the Navy was about due. But he soon tired

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and dragged his way slowly to his chair on the poop. Light as the work was, he was too old for the job.

AS the old man dozed peacefully, for him, the wild winds and snow-capped peaks of 'The Land of Fire' off which he lay were exchanged for the gentle breezes and enervating warmth of the flat, sandy waste of the African coast reflecting the last rays of the setting sun before it dissolved into the waters. Day gave place to night with the suddenness of the tropics, and the *Flying Angel* set sail by the light of the moon and stars.

One by one the great sails unfurled, hesitated a moment, then proudly stretched, full-bosomed before the wind. Mainsail, topsail, topgallants, royals, and skysails, from jib to spanker washed by salt seas, bleached by tropic sun, no river swan more graceful than this cygnet of the seas as she rode easily in and out of the hills and valleys of the whispering ocean. Under the long jib-boom her Madonna-like figurehead, with gilded wings reflecting the moonlight, looked down at the white, scattered foam at her prow. A well-found ship. The decks holystoned as white as the sails, the brilliance of the stars in every piece of burnished brasswork. The captain, arms folded, motionless on the poop, surveying everything. The mates directing the crew.

It was a crew of jail-birds scoured from waterfront taverns—unshaved and unclothed save for such rags as could be gleaned from the ship's stores, for none had come aboard willingly. Stripped of all they possessed by boarding-house pimps, they had been brought aboard naked and unconscious, to wake to the soul-disturbing realisation that they were on board a ship so hot she could sail through Hell with paint unscorched, commanded by one more villainous than themselves—'Parson' Jack Murgatroyd, so nicknamed on account of the record number of burial services he had performed at sea on members of his crews. The mates wielded the only authority they understood, the lash and the boot, confident that, if they failed, Parson Jack had even more efficient methods.

But one must go lower still, below decks, to find the utmost dregs of human degradation, for there, in a stench so foul that a breath from a sewer would have brought relief, were packed a thousand souls differing from the

men above in that their skin was black. Men and women, and some children—and more children would be born before that ghastly voyage was over—a cargo of wailing and moaning chained misery.

Once the trade had been legal and remunerative; now it was outside the law, but the value of the cargoes had doubled owing to the risk. The present freight represented a fortune to the captain, who was owner of the ship. Ordinarily, ten out of every hundred would die on the voyage, but Parson Jack hoped to reduce the percentage, for these men were strong and healthy, no warriors but great hunters. Simple and trusting as they were, their village, unused to the slaver's ways, had been easily taken. In three weeks, with a fair wind and barring accidents, Parson Jack would make port.

THE little naval craft, schooner-rigged with clipper bows, that sighted them near their destination was the accident. Barely visible on the horizon, she bore down on the *Flying Angel* as she lay becalmed. The great sails hung lifeless as shrouds. In vain the captain ordered the men aloft to wet the canvas. They worked with a will, for floggings and beatings were commonplace. Men were kicked off yard-arms, the sick were not encouraged to live. Jack had no mind to pay his crew wages. When the ship reached port they would scuttle like rats and he would shanghai another crowd.

The sails fluttered sullenly and lay listless. There was no wind for them. Wind enough, however, for the little naval schooner tacking to every draught of air. Relentless and patient as a bird of prey she was slowly overhauling them. She represented death, the penalty for slave-trading. And Jack Murgatroyd meant to live. Bitterly as the decision would hurt him financially, he must destroy the evidence. His mates disliked the decision as much as he, for they would share in the proceeds of the voyage, but they gave the order to jettison the cargo, and saw it carried out. The men were without feeling, for they had no share in the venture, and to be rid of the brutes meant less work for them.

The hatches were lifted and the wretches down below, no longer moaning, but dumb with seasickness and terror, were dragged on deck. There they became articulate, for their fate was apparent. Their frantic screams and

THE HULK

struggles were short-lived. Their manacled limbs could not sustain them long, and they sank like stones.

A woman struggling in the grasp of a seaman lifted her arms, rubbed raw with chains, to heaven, imploring African gods. An infant clung to her knee, not understanding, looking up at the man with the half-conciliatory, half-fearful smile of frightened childhood. The man hesitated, and with his own hands the captain clubbed the woman and child to the deck and kicked them through the scuppers, threatening to keelhaul the man. Black with rage, Murgatroyd had no time to waste. That crawling, government rat was creeping nearer every hour. The shark-infested waters left no trace of the cargo, and, intent on their work, none had noticed the dark patch of cloud on the horizon, at that distance no bigger than a man's hand.

THE winds came without warning. The sails, teased by fitful gusts, shuddered uneasily. Rain swept the decks like shrapnel, and then came the gale. With a crack like a pistol-shot a topgallant tore away, waved in ribbons, and was gone.

Parson Jack paid no heed. The storm had come too late to save his cargo, yet he had no mind to be boarded by authority, perhaps taken to port for questioning and a description of his vessel circulated to the patrol-ships of the world. He could carry sail where that government toy scarce dare break a flying-jib. He knew the tropics. The pampero would not last long, but time enough for him to be out of sight, hidden amongst the islands of the Caribbean to reprovision and set a course for Africa.

The helmsman, white-faced but obeying orders for fear of death, kept the ship closer to the wind than she was ever built to sail. The pursuing vessel, just out of gunshot range, could be dimly made out through the driving spray taking in canvas, for her rig was never meant to sail this weather. Pursuit was hopeless, but a shot was fired as a final gesture. It fell short, striking the water dead astern, then ricocheted and came aboard, smashing the helmsman to pulp and splintering the steering-gear.

Too late the captain dashed for the damaged wheel. The vessel, out of control, put about like an animal doubling on its tracks. With a crash that could have been heard by the men

on the schooner, the masts and yards descended, smothering everything on the deck beneath them. The vessel had been taken aback. The tall masts, stayed only to run before the wind, could not withstand the shock. The ship lay dismasted on the ocean, as helpless as a barge.

Again the decks of the *Flying Angel* echoed to the screams of the doomed as trapped men fought to free themselves from spars and tackle that crushed the life-blood out of them. Parson Jack, with his mates, had escaped and he was unaffected by the men's troubles; the crew were of no further use to him. He gave no orders, standing immobile on the poop waiting for the end of the storm and the arrival of the life-saving schooner that would tow him to port.

WITH the speed of its birth the gale died. No cloud in the sky, scarce a ripple on the water, the tail-end of the breeze ideal sailing weather for the schooner now hoisting mainsail and jib. With a bone in her teeth, and a thirty-degree list, she bore down under full canvas on the *Flying Angel*.

Over the calm and unfurrowed field of sea came a boatload of men, the sun's rays flashing from their cutlasses, the young officer in charge grim and efficient. No one greeted them. Surly as beaten dogs, the mates continued working with the survivors of the crew, clearing the wreckage overhanging the side, for if another storm overtook them in this condition the ship would founder.

The officer asked no questions and demanded no papers. Curtly telling the captain he was under arrest for failing to heave-to, he posted guards and searched the ship. A cursory inspection confirmed what he had suspected. Within his hand a broken nose-ring, of the type worn by the daughter of an African noble, he approached the captain, his eyes gleaming questions that demanded answers. 'Your cargo?'

The captain made no answer. His cargo gone, his ship a helpless hulk, the ornament in this government jackanape's hand was evidence, but insufficient to convict. He grinned a death-like snarl.

Impatiently the officer stepped forward and seized him by the shoulder. . . .

But, though he brought presents of tobacco and a bottle of rum, shake as he might, Jack Murgatroyd would never waken.



Shark-Fishing—A Boom Industry

MELVIN FISHLEY

ONE of the world's boom industries to-day is the shark-fishing industry, the reason being the shortage of the precious Vitamin A which comes from the fish's liver. Besides, there is a growing taste for shark-meat in many parts of the world.

It has been said that every part of a shark can be utilised except its breath, for surprisingly little of the fish is wasted. Besides the medicinal value of the oil which is extracted from the liver, the carcass is used for a variety of purposes. The skin, for instance, may be tanned and made to form an excellent shagreen. Shark-leather is considered to be more durable and softer than ordinary leather, and has far wider uses. A few of the products which can be obtained from shark-hide are patent-leather that will not crack, coats as soft as silk, and shoes which challenge lizard-skin and snake-skin for their beauty.

The fins of the shark are used to make a soup which is much favoured by the Chinese, for they contain a gelatinous substance which the Chinese prize as a vitamin. The meat, which is cut into strips and dried before packing, has been eaten by natives in the Far East for centuries, and in many parts of Africa it is regarded as a delicacy.

Before the recent World War there was a general aversion to shark-meat—an aversion which arose from the belief that every shark was a man-eater: in actual fact, only a few sharks can be classified as such. During the war, however, when many countries were faced with acute meat shortages, people retracted

from this somewhat erroneous belief. Shark-meat was introduced in New York and in many other eastern cities of the U.S.A. on a large scale during February 1943. By August of the same year the demand was so great that the distributors could not keep up with the orders. Nowadays the flesh often finds its way on to American dinner-tables.

Stripped of its hide and meat, the remainder of the shark's carcass is still a valuable possession. The teeth and jawbones provide valuable prizes for souvenir hunters. In some of the Pacific Islands the teeth are used as currency, whilst in China they undergo a process of cleaning, bleaching, and polishing, and are afterwards capped with gold and made into beautiful ornaments.

From the pancreatic glands precious drugs are obtained, and the gall produces pigments of fine quality. Even the eyeballs can be marketed, for once they are dried out they form pearl-like gems which can readily be sold to the jewellery trade.

SOME of the boats employed for shark-fishing are deep-sea vessels specially equipped for the task. Thus, immediately a shark is hauled aboard, it can be broken down on the spot. First of all the skin is carefully stripped off and placed in a solution of strong hydrochloric acid. This removes the very small denticles that roughen the skin: in less than thirty minutes the skin can be made as smooth as calf-leather and is ready for tanning.

BEGGARS AND MUSICIANS

Whilst the skin is being processed the carcass is cut up. From it some twenty by-products may be obtained, including such items as glue, fertilisers, animal fodder, dye-stuffs, and polishing materials.

The actual task of shark-fishing is often a hazardous one. One of the worst types of shark that the fishermen have to deal with is the electric ray. This fish can grow to a diameter of four feet and its tail can deliver an electric-shock which will render its victim unconscious. Another dangerous type is the giant ray, which has a tail like a whip and carries a poisonous sting which the fish uses to poison its enemies. Once it is caught, however, the giant ray is a valuable prize, for its skin is used to make the highly-valued jade shagreen.

When a shark becomes entangled in their nets the fishermen must move fast. The net is dragged up until the head of the fish pro-

trudes above the water and a hook, which is suspended from a derrick, is thrust into its jaws. When this operation has been successfully accomplished, the fishermen kill the shark either by shooting it through the brain or by dealing it heavy blows with clubs. Even when the fish is dead the fishermen must move warily. A shark has a violent reflex action immediately after death and the power behind the wildly-beating tail is sufficient to inflict serious injuries.

At present the shark-fishing industry may be identified with the waters off the coasts of South Africa, New South Wales, Florida, and California. There are indications, however, that the industry will expand considerably within the next few years. Not long ago the Saudi-Arabian government sent representatives to the U.S.A. to find someone who could teach Arab fishermen how to catch and utilise the sharks which abound in the Red Sea.



Beggars and Musicians

Lisbon's Cats and Little Minstrels

A. R. CALTOFEN

IF you took from Lisbon its Rossio square, you would take its heart. If you took its beggars and musicians, you would take a part of its soul.

But I will not speak of starving men, who, thank God, are only seldom met there. Nor will I mention those 'entirely blind,' 'entirely maimed,' who, sheltered from the sun and the police by a mighty cocos-palm, recognise with their lynx eyes a foreigner at a distance of more than a hundred yards and, quick-footed, pursue him through the alleys, with their cobblestoned pavements. I will not speak

either of the newspaper-boys, who, with the same shrewdness with which they disobey the police order to wear shoes—they put one of them into the pocket—try to get any read newspaper in order to sell it again in front of the nearest coffee-house as the latest edition. What I do intend to speak about is the great guild of the local four-footed beggars—the cats of Lisbon.

THESE cats lead a life on street rules of their own, and the focus of their life is

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fish. Just go down on the quays where the gay-coloured fishing-smacks with the slanting masts unload their cargoes of fish. A host of cats, tough and intrusive like gypsies, wind their way among the tight sacks of salt, empty boxes, and waiting donkey-carts, only to rush, when all eyes and hands are occupied, on the heaps of entrails. They swallow, vomit, swallow on, their eyes meanwhile looking for the next booty—milk-white cuttle-fish, delicate sardines, fat eels. The possibilities of choice are numerous. The cats' table is well laid.

It is also worth while for the cats to go and inspect the market-halls in the vicinity of the harbour or to join the fish-women who day after day from the earliest hour of the morning walk up and down the steep stairs of the city alleys, balancing on their heads the wide bowl-shaped baskets holding half-a-hundredweight of fish, what time they offer their wares in a loud melodious sing-song. When a customer turns up, the moment is come which the little beggars have been waiting for. The basket is put on the ground, the fish is weighed, and perhaps a fish-head is given to them, or the boldest manages to seize a whole fish at the tail and drag it off quickly.

Curiosity once drove me to follow one of these ugly cats, which have mostly run wild. It carried a big fish in its mouth and could not escape from me because it had obviously injured its left hind-paw. Now and again it put the fish down, mewed plaintively, and at last it disappeared in one of the yard-wide, variegated lanes, which look very picturesque, it is true, but don't smell invitingly when the odour of hot oil, dried fish, garlic, laundry, and sundry undefinable things nearly seems to coagulate between the house-walls. Yet resolutely I followed the cat and saw that from a low dark corridor, which served for a shop where they sold earthen water-jugs, a pretty young cat clumsily jumped towards its mother as far as the string round its neck would allow it. The little one was delicate and white, so white that you would never have thought that the fur of its mother could have had such a dirty yellow colour.

The children in the alley surrounded a street-vendor of sweets, groundnuts, and salt beans; the shopowner might be in the tavern or at rest in his house—the fact was that the two cats had the time to have an undisturbed mewing talk with each other. The mother licked her offspring's fur until it shone,

divided the fish into small appetising pieces, and looked at her eating child with blinking eyes, her whole body from the pricked ears to the tip of the tail expressive of maternal love. When a child noisily dashed into the corridor, the old cat pressed herself closely to her little one as if to protect it, and then—I scarcely saw how it happened—she bit the string through in the fraction of a second.

Often had I watched in astonishment how cats crossed the wide Rossio amidst the crowds of people and cars that went past full-speed, so I did not wonder when these two cats set out to leave the alley. What interested me was where they went. Did they want, like so many of their companions, to have a short midday sleep in the shadow of the houses, if possible in the neighbourhood of a cool fountain? No—they slunk on. They went along two by-streets, turned into one of the main streets, and took their course in the direction of a bank-house, where, on the polished top of the counter, another cat, snugly curled up, was lying.

It was a well-kept cat, a really aristocratic one—aristocratic not by birth but in her way of living, and here, in this city, where there is no middle class for cats, a wave of good luck had borne her from the mud and misery of the dirty alleys to a level towering high above her begging companions. The counter on which she rested was the symbol of a throne, and in front of this throne the little one began to ask alms. She begged with the whole grace of a delicate childlike creature, while the mother, on purpose as it seemed, kept herself in the background.

I know that we should not interpret the behaviour of animals from the standpoint of human creatures, and yet I involuntarily began to try and find an explanation for what I had seen with my own eyes. Had the old ugly cat once been beaten and scared away from that spot, so that now she did not risk to go nearer? Or was it that she feared to be a handicap to her child, for which she, in her unfailing instinct, wanted a place exquisite as that occupied by the aristocratic fellow-cat—a place in life that guaranteed hours of rest on a polished counter-top, a gay ribbon round the neck, and hearty meals every day . . . ?

ONE day I found another strange little beggar among the animals of Lisbon—but he was only small in proportion to me.

BEGGARS AND MUSICIANS

Among his own fellows he represented a giant. He was a jackdaw, with lame wings and dishevelled feathers. He stood in the glaring sunshine in a desolate alley, surrounded by sleeping cats, of which, however, he did not take any notice. He also kept his stoic attitude when I went towards him and threw some crumbs of bread to him. But when I went nearer, he crowed with inimitable reproachfulness, showed me his back, and strode away, slowly and controlledly, his head upright—every inch a misunderstood artist.

That was the first time that I came in touch with a representative of the guild of Lisbon musicians. But I hope you will understand. What I mean is not the musicians of the concert-halls and jazz-bands, which exist here as in all parts of the world. It is not the tambourine beaters and trumpeters, who, decorated like natives of Mozambique, do publicity work for cinemas and bullfights or, along with guitar players and flutists, play for a dance in the garland-hung market-halls. Nor do I mean the young soldiers of the legion who call the people up with their exciting beating of the drums. What I think of is those small and smallest musicians who are found not in the houses behind the palms of the *avenidas*, not in the noble villas with the pretty green *azulejo*-tiled walls, but, like the cats, in the old dirty alleys.

These alleys are so narrow that an ox-cart can hardly wind its way through them. Gay-coloured pieces of linen flutter from the rows of narrow balconies, and the balconies themselves are decorated by flowers—the violet-

blue bindweed with large bells, the golden wall-pepper, the crimson midday-flower. And there the musicians I have in mind are sitting, there they are singing, rejoicing, so that you think their hearts might burst in their little breasts. In front of nearly every window a cage is hung up, sometimes two or three, and they hold an enormous number of birds of song, looking prettily light-blue some of them, others with pink spots, others again with blood-red coats. And it is like a beautiful dream to listen to them.

But when the sun is setting in the near ocean and the pinnacles of the castle on the hill shine like gold, the great hour has come for the very smallest among the musicians. The crickets tune their instruments. Their tiny red, blue, green cages hang in the doors or on a window-bar. They chirp and chirp. They play unceasingly their wonderfully fine violins. The good old man with the black rustic nightcap on his head, who was watering his flowers on the unstable roof of his house, might, at their play, have felt a longing for the olive-groves and vineyards of his native place, perhaps for the big agave behind the water-mill. The young blind man, who, when listening to their song, forgot to call out his lottery tickets and looked with his empty eyes into the distance, while his red-white stick helplessly groped its way along the hard kerbstone, he perhaps saw, in spite of his blindness, a pure, radiant light. And my own heart opened widely when I heard the song of the crickets at the time of dusk in the narrow lanes near the sea.

Breckland

*Hope not for evening hush, for none is here,
Only the wind's sweet surging to allay
The burdened senses and enslave the ear—
Finale to the slow-declining day.
Nor seek for gentle tints, for here behold
The streaming banner of a flagrant sky,
Flamboyant scarlet intertwined with gold,
Across whose face the pearly cloud-ships fly.
There's music in the bracken; every frond
In that vast sea is wildly revelling.
The crossbill haunts the pine tops and, beyond,
A churring nightjar speeds on silent wing.
And over all upon a purpling crest
An early star alone has need of rest.*

ARTHUR TURCK.



A Debt of Honour

A. M. KAY

GLENSHELISTER Castle began as a plain, stone-keep, well set for defence on a knoll in a wide strath at the foothills of a mountain-range, where the loops of a hill-born burn grown into a river provided a natural moat. There the early indwellers, who lived by the strong arm and the sword, enjoyed needful security but can have had only the barest of comfort. Their successors, in less turbulent times, have, however, so added to and altered the original stronghold that it has become a fine country mansion of oddly assorted architecture, dominated by the ancient battlements and turret, which afford vantage-points for a splendid outlook over woods and pasture-lands to the island-studded Sound and a far horizon of dim, blue peaks.

The present laird, Reuben P. Macmaster Muller, formerly of Florida, U.S.A., who bought the property between the wars, has wrought his share of improvements. For instance, he has harnessed a fall of the river to supply electric light and power, installed the latest in radio equipment, and flooded part of the moatside garden to make a gracious lily-pond. There is thus nothing forbidding in the general aspect of his residence, and I am always sure of a cordial welcome there from my friend and kinswoman Mrs Gillies, the housekeeper; but there have been times when, in making my approach at dusk, I have been aware of an uncanny sense of dread.

Mrs Gillies, who is steeped in orally transmitted local history and tradition, attributes

this curious complex of mine to heredity, for, according to her information, some of our mutual ancestors had, in their day, good reasons to gang warily when within bowshot of the battlements and in range from the loopholes that still slot the turret. In particular, she cites the case of a direct progenitor of ours, one Alasdair Ban of Carsaig in Knapdale, who limped through the later years of a long and not notably worthy life from the hurt of a musket-ball taken in an obscure tulzie on the knoll in the lurid past of this part of Campbell country. She claims, further, that that crippling shot was actually fired from a loophole that is now one of the windows of the housekeeper's room in the turret, but I suspect that to be a piece of her own embroidery on the old tale.

I must have been thinking of Alasdair Ban's misfortune when, in the gloaming of an October day, I entered the driveway, where a chill wind souged overhead and the turret loomed stark against a scoury sky, for, once again, I suffered a stound of that old, unreasoning fear. I was mentally measuring the distance between me and those menacing loopholes, and assuring myself that I was still beyond hostile range, when a skirling of pipes arose from the dusk ahead and the sky reddened as if from torchlight glare. Involuntarily, I glanced towards the shrubberies skirting the drive, with a subconscious impulse to seek cover after the prudent fashion of my forebears in like circumstances. And

then a festoon of electric fairy-lamps sparkled alight on the battlements. I identified the piper's tune as a cheerful gathering rant, and, banishing Alasdair Ban back into the mists, hurried on to find the cause of all this torch-lighting and piping in a prosaic, modern age.

At the next bend of the drive I met a procession, headed by the piper, now dirling out a merry march. Behind him rolled a brand-new farm-tractor, driven by a bonnie lass wearing a bright, tartan snood over hair hued to match the red glare of the smoky torches held aloft by an escort of eight kilted stalwarts. Next came the laird's big American car, in which were seated Reuben P. himself, his lady, and a party of guests; and, bringing up the rear, straggled quite a crowd of ordinary folk—all evidently enjoying the pageantry of some special celebration. The Castle was ablaze with lights, and, as I stood on the doorstep, I could see signs indoors of the disorder that succeeds festivity, and for a moment I hesitated to intrude on Mrs Gillies, who would, no doubt, be busy tidying up. But her kind voice hailed me from the wide hall, inviting me to come in and find my own way up to her room in the turret, where she would presently join me; so I climbed the steep stone stairway into sudden silence within the thick old walls.

THE room in the turret seemed in unusual disarray. The table in the window embrasure was laden with books, some of which had spilled to the floor, and more books and papers littered the hearthrug. Lest a spark from the glowing wood-fire should reach these, I was just going to pick them up, when Mrs Gillies bustled in. She looked flushed, her eyes sparkled as if with excitement, and she seemed a trifle weary, but she greeted me with her usual smile as she cried: 'Tuts, amn't I the silly body not to have remembered you would be about here again! I ought to have sent you word to come over to share in this day's splore. It's been one of the best the Castle has seen for years. Man, you'd have enjoyed it all, especially the laird's oration. He did that real well, even to the Gaelic phrases he made me drill into him beforehand, so as to give his speech the right, local tang and character. Oh, yes, he reeled them off like a native; and the few besides myself that understood a word here and there gave him a hoochin' cheer you might have heard as far away as Glenshelister village!

'Well, it's all over, and here's me thankful for that and to be able to sit down and take my breath. Set these papers on the table, if you can find room, and take that fireside chair. Me-the-day, if you're not dying for a cup o' tea, I am! I've told Peggy, the tablemaid, to fetch us up a tray with the biggest teapot and whatever she can snatch from the bakemeats left on the dining-room sideboard. There should be plenty, for, though I say it myself, it's been a wiselike spread. Reuben P. called it a proper clambake, whatever that is; but anyway he seems satisfied that we did the right thing in the way of Highland hospitality, and that's a mercy.

'If I'm a bit tired I have myself to blame, for I set the laird going and got drawn into some of his poking and peering into old histories that led us to this day of feasting, speechifying, and yon procession you met just now on the drive—torchlighting, and piping, and all. Reuben P. has been in his glory for weeks past. As you know, he's terribly keen on ancient things and old stories; and, as you may have noticed before now, I'm daft enough, if I get the least encouragement, to recall and recount some I heard told in the Gaelic when I was a bairn at the Blarbuie fireside. Between what we found in these books and papers and my memory we managed to piece together the story that's behind to-day's doings. Maybe I did add some fancy to flavour the dish, but the tale's as near true as most of the others that please the likes of the laird, and you!

'This one doesn't go as far back into the past as some you've egged me on to tell. Only two centuries and a bit, to the Rising of the 'Forty-five, which, as time flies, isn't all that long ago. Some of the very aged ones still alive when I was wee had heard details of that affair from their elders, who, in their turn, may well have known men who had been out on the right side or the wrong one. You can pick which was right and which was wrong for yourself, but, to save you getting romantic notions, let me assure you very few of your forebears and mine had the imprudence to take the Prince's part against His Grace of Argyll and King George—not in Glenshelister, within a day's march of Inveraray itself!

'Among the papers on that table is a list of those that made that bold, foolish choice, and lost their lands and holdings for their folly. At least one from Blarbuie direction—no kin of ours—has his name there as suffering forfeiture and other penalties; but, after

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Culloden, he escaped to Virginia in the States and prospered well. Tracing him will be Reuben P.'s next bother, for he's keen to find a sure link between the Macmaster side of his house and Glenshelister, so as to prove good Highland descent and connections for himself. Good luck to the decent man! Anyway, the Glenshelister folk, like those of Kintyre, Cowal, and Nether Lorne, were mostly for the Duke and the King; and when the news came from Moidart and Duke Archibald, the Third, set to the work of raising a loyal regiment to fight against the poor Prince he had little trouble in finding recruits hereabouts.

'But here's Peggy with the tray, and the big teapot, and a fair selection off the side-board.—That's a clever girl! Shove the books off the table, dear, and set down your load. Never you mind, I'll tidy up later on. Many thanks, and away you go now and get your own.—I know you've often wondered, my lad, whether I can drink tea and talk at the same time, and you're going to see that I can—yes, and eat cream-cake too; and if I speak with my mouth full that'll not be ill manners among friends, will it? There's enough on the tray to keep even you quiet while I try to get on with my story; so pass up your cup when you're ready and keep a decent silence when your respected elders are speaking!

'**ARGYLL,**' resumed Mrs Gillies, 'picked the right man to command that muster in Major-General John Campbell of Mamore, who, by the way, later on succeeded him as the fourth Duke; and, properly enough, the corps got the name of the Argyll, or Campbell, Militia and was officered by gentlemen of MacChailein Mor's own clan—the Campbells. There was no need of a Fiery Cross, for men had to go and join-up at Inveraray, or find and send substitutes. Several of the lesser gentry in Glenshelister who were called took that option, and among them was James McIsaac of Barrachan, a holding on the shore and the hills yonder beyond Blarbuie. But that part was desolate sheep-pasture long before you were born, and of James's dwelling-house and steadings not one stone now remains on another, except under grassy mounds and bracken.

'This McIsaac is named in the old stories as James-the-Skinflint, and from that you'll guess he was reputed to be close-fisted, and

maybe not over-scrupulous. Certainly he was not the man to risk his own skin, and he had no bother at all in finding a substitute for soldiering. He had money—ill-gotten, according to the old ones—and in a poor countryside where there were plenty of hot-headed lads willing enough to try a turn at their fathers' old trade for a ploy, let alone for reward, he had his pick. And, besides, there was the allurements of arms and uniform to tempt the young and thoughtless ones, for the Duke's Militia was to be armed and dressed bravely and brawly, with muskets, bayonets, and broadswords, and red coats, belted plaids, fancy hose, buckled shoes, and broad bonnets badged with black cockades and red and white crosses.

'I've gathered from the books there that the red coats and other glories of uniform didn't arrive until after Culloden, but the promise was there to bait the snare. The Skinflint's choice fell on a lad of my own surname, Duncan Gillies, an incomer from Loch Lomondside, who was at the time lying low in Glenshelister until the stour of some cattle-lifting escapade in Glen Falloch had settled. By that you'll guess Duncan was ripe for anything in the way of strife and stravaiging; and he jumped at James's offer and promises like a cock at a grosset, without taking time to hear or heed particulars.

'What bargain there was was made by word of mouth. Trust the likes of McIsaac to be wary of setting his hand to any writing! Duncan was to have two hundred merks Scots, paid when he came back—if ever he did; and you needn't ask me the value of the merks in to-day's money, for I don't know, although you'll find that, too, in some of the books there on the table, I daresay. Arms, and particularly muskets, were scarce in Argyll, because of the Disarming Acts, or because our folk were too wise to pull out what they had hidden under the roof thatch, yet the Skinflint was able to provide a firelock, an heirloom piece that had been in his family for generations and had little to commend it but some bonnie chasing on its long barrel. Duncan Gillies, the rascal, happened to have pistols and a sword of his own, a dirk and one of these wood and cowhide, brass-studded shields that they called a targaid, or target. How he came to have all that hardware handy nobody seems to have wondered, but it just shows you the sort of cateran character he was!

A DEBT OF HONOUR

'Well, that was McIsaac's deputy trysted and armed, and ready for the road; and away he went to the muster as bold as brass. I can believe there were tears in some bright eyes, and sighs of relief from some mothers, at his going. Such rascallions always have been heroes with silly tawpies of girls, more's the pity. Anyhow, that's what we say now that some of us have got past being noticed by the lads and have nothing to warm our hearts but what we can remember of our own daft days. I told you to hold your tongue, but thank you kindly for interrupting with what I know you mean for a bit flattery. But if I'm still worth noticing myself it's as wonderfully well-preserved—like a frozen chicken, or a smoked haddie!

'News took long to travel in those days, but in time the Glenshelister folk heard that the Argyll Militia had been in battle at Falkirk in January 'forty-six, and later on of their share in the great, sad day at Culloden in April. After that, tidings came that the corps had been split up into companies used for scouting and skirmishing and besieging. And, early in the summer, a lad who came home crippled with wounds told that Duncan Gillies had won safe through all and was last heard of in Knoydart, where he was with Campbell of Glenorchy's company harrying the countryside and seeking the poor Prince, who was thought to be in hiding somewhere thereabouts.

'The story goes that James McIsaac had the ill taste to glory in his deputy's doings and went about boasting as if he'd been serving the Duke's cause himself in the flesh. He went further, for he declared he had an extra fistful of silver for Duncan if he and his company should lay hands on "the Pretender," as he had the gall to call the Prince; and, in the same breath, he'd be wondering when the precious McIsaac firelock would be coming safe home to his hands. He had hard looks to his face, and many a bitter word behind his back, for that from the Glenshelister folk, who mostly hoped that poor Charles would win free and get to ship for France. As for the gun, if all wishes came true, it would burst the first time its owner charged and fired it when he did get it back.

THEN, on an afternoon in the hay harvest, the Blarbuie folk dropped the sickles in the swathes and ran to meet a man who had

appeared on the drove road yonder from Inverlochan and was coming down the brae leading a white horse. Here was the bold Duncan, a bit more staid and older than the lad who'd gone off to the wars for a ploy, for promises, and with a borrowed firelock. And he wasn't alone, for on the white horse rode a towsy-headed lass in her teens, plaided in outlandish tartan, barefoot and nut-brown, who greeted the folk with bright, wary eyes and clutched the hilt of a sheathed dirk in the bight of her plaid.

'However, she soon realised that she had come among friends and went gladly with the kind women into the nearest cottage to be fussed over and fed—and, I daresay, well washed and combed. Duncan, too, had meat and drink set before him and was deaved with questionings. Like me now, I'll warrant he was hard put to it to tell his tale with a full mouth! But he got it out that it was somewhere in Arisaig he'd fallen in with the wild lass on a day when, with a companion, one Donald McNair, a decent man from Kintyre, he was scouring the hills in search of fugitive rebels. That job was far from being to their taste, for, after what they'd seen and heard of Butcher Cumberland's notions of putting down rebellion, they were scarcely hot with zeal for King George's cause and had found out that blood is thicker than water, especially Highland blood!

'In a hazel thicket in a wee glen they'd come on an oldish man in Cameron tartan lying sore hurt, with the towsy wench, who said she was his daughter Morag, tending him and ready to guard him like a wild-cat, when she saw their Campbell tartan. The lads managed to quiet her, and she let them do what they could for her father; but he was at his last gasp, and by nightfall the only kindness they could show was to give the poor body decent burial. They were of the one mind about keeping their findings to themselves, but they were left with the lass on their hands, distraught with grief and at her wits' end. In the end they found her shelter for the night in a shepherd's cot on the hill, and they consoled her that one of them would come back when the coast was clear and try to give her help to get safe home to her kinsfolk.

'As it happened, next day Duncan was detailed to carry letters to Inveraray, and set off on his journey. He hadn't got far when Morag broke cover from the roadside bracken and insisted on going with him, whether he

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liked her company or didn't. She claimed to have an aunt somewhere in Knapdale who would welcome her, and what could Duncan do but take her and let her march? He made out to the Blarbuie folk that the randy threatened him with her dirk, and that he'd far rather have been at the old ploy of cattle-lifting, for she looked like being ill to drive or lead. And she wasn't shod for the heather tracks, so he bethought him of that old trade of his and set about to find her a horse. Near Ballachulish they fell in with a packman riding the white nag, and managed to persuade him to trade it for the McIsaac heirloom gun. Maybe their pistols and dirks helped in the bargaining, but Duncan made out that the packman, who was a kind fellow with a fancy for firearms with chasing on the barrel, was keen and glad to make the deal.

'Well, Morag Cameron travelled on into Knapdale to her kinsfolk by marriage and stayed there until Duncan came for his founding. Then there was a wedding here in Glenshelister, where the pair set up on a holding within sight from the Castle and prospered until, in their middle age, they moved into Cowal, where their descendants are to this day. James McIsaac lived up to his byname, for he disowned his bargain and paid not a stiver to his substitute at the wars. He made out that the loss of his heirloom firelock was far more than its value in merks; but he took the white horse and grumbled that it was a poor, foundered brute and no compensation for the gun. The old tale makes out that this mean doing was punished with one misfortune after another for McIsaac, who very soon lost his health, too, and didn't make old bones. That last seems to be true, for I could show you his headstone, with the date of his death and his age on it, in the old burial-ground yonder at the foot of Blarbuie hill.

'**N**OW, when the laird and I were following Duncan and Morag we came on something else that pleased Reuben P. a good deal less, for we traced a far-out connection between the Macmaster side of the house and James McIsaac, the covenant-breaker; and that led up to to-day's splore of feasting, speechifying, piping, and torchlighting, and the procession you met on the drive on your way in. As you know, the laird sets the greatest store by tradition and is proud of his

Highland descent, remote though it is. He has the heart of gold too, a jealous regard for justice and fair-dealing, and some curious, sentimental notions of duty. You and I might think to ourselves that all that proves his good heredity, and supports his claim to be of the right stock; but some would say we're just full of Highland pride there, and maybe they'd not be far wrong!

'Anyhow, after pondering the tale of Duncan and Morag and poor James McIsaac, Reuben P. couldn't rest until he had traced direct descendants of the young pair, so that he could make amends to them for the Skinflint's injustice. He worked out the present-day value of two hundred merks Scots, which wasn't a hard sum for him seeing he's used to translating dollars into pounds; and he even calculated the interest due after a couple of centuries. Then he picked on a young couple now farming in Cowal as the closest to Duncan and Morag, introduced himself to them, told them the old tale, and insisted on presenting them with a tractor in memory of the white horse and to square the debt he fancies he heired from the Skinflint. Between us we arranged to-day's doings, but I had nothing to do with that palaver of piping and torchlighting—that was his special notion, and he was as pleased with it as a bairn at a bonfire. I will say he picked the right lass to drive the tractor. Of course, you would notice her. Man, she had just the brave air and the towsy, red hair to play the part of Morag Cameron, the foundling lass of Arisaig!

'Oh, well, if you missed the day's doings you know now what it was all about, and I will say you've done late but full justice to your share of the feasting. You'll not feel like walking far after all that, but the car will be back shortly and I'll see that you get a hurl home to the village. If I was to tell the laird yon other story of Alasdair Ban, our ancestor who got his hurt from the shot fired from my window there when it was a loophole, he'd feel duty bound to send his car to fetch and carry you every time you come to see me. He might find that one of his forebears fired the shot and be afraid lest you should have inherited Alasdair's limp as well as that daft timidity you used to have as a bairn when coming to the Castle on errands in the dusk. But, as to that last, I could assure him you've outgrown it, with many another childish notion shameful to a staid body like you at your time of life.'



Skagerrak Story

Running Hitler's Baltic Blockade

SCANIA

IT was with some little trepidation that I received the Director's invitation to dine with him in his handsome house just outside Gothenburg, for the formalities attendant on these functions in Sweden are formidable and beset by pitfalls for the untutored foreigner, especially where there is a lady of the house. An air of the Court of Versailles lingers on, indeed, in the Sweden of the 20th century. I read the Director's expensively engraved card, then, without undue enthusiasm. He was, I knew, a bachelor, so there would be no feminine complications, but in himself he had certain qualities somewhat frightening. To vast wealth was added a terrifying formality and, by our lights, an entire lack of humour.

Yet things are rarely so bad as one anticipates, and the dinner and the company left nothing to be desired. Afterwards we adjourned to our host's study, where excellent coffee and better cognac were offered. For the moment, however, I was more interested in a stained portrait which occupied a conspicuous place on the wall. Going nearer, I found that it was a picture of Sir Francis Drake, in trunk-hose and doublet, against a background of a West Indian seascape. Seeing my interest, the Director approached. 'That portrait,' he said, 'ran the Nazi blockade seven times during the War. It came from

one of the little ships of yours which took our ball-bearings and precious ores to Britain. I can, if you wish, lend you some papers about the matter.'

Naturally, I did so wish, and now I venture to submit, in the hope that it will interest some readers, the gist of the extracts I made from the papers with the Director's permission. I should add that the documents were not, and never had been, of a confidential character, but were simply press-cuttings, articles, and so on, published during or just after the War. But few people in Great Britain seem to have heard very much of these most gallant operations, and I suggest that they are well worthy of public remembrance. In my opinion, they rank at least equal with the greatest deeds of those strange years of war.

A GLANCE at the map will show that the Baltic is very nearly a closed sea. The ferry from Helsingborg in Sweden to Helsingör (Hamlet's Elsinore) in Denmark takes a bare quarter of an hour, and, even at its widest part, the Kattegat is little more than seventy or eighty miles broad. Opposite Gothenburg, matters, from the angle of the strategist, are even more thought-provoking, for a bare forty miles or so separates Sweden's largest

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port from the mainland of Denmark. It is obvious, therefore, that the closure of the Baltic and its approaches presents few problems to the Power which has local command of land, sea, and air, and this was the happy position of Nazi Germany after her invasion of Denmark and Norway in the spring of 1940. It is a fair presumption that the German High Command had little apprehension that Britain would receive much help from Sweden and her not inconsiderable resources.

So, indeed, it must have seemed to anxious statesmen in London and to their technical advisers in those black days of German hegemony of the Continent. Still, necessity is proverbially the mother of invention, and where she is joined to an age-old tradition of maritime supremacy much can be accomplished. The results of that union form a thrilling episode in our history, directed as it was by fearless and brilliant brains and executed by gallant British and allied seamen.

IN 1939, soon after the outbreak of war, very large contracts for war material were placed in Sweden by His Majesty's Government. These included the world-famed products of S.K.F. (the Swedish Ball-Bearing Corporation), precision instruments, and steel—all vitally necessary to our war effort. So long as Denmark and Norway were not overrun, matters were relatively simple, but when Hitler struck with stunning success the picture changed overnight. For all practical purposes the unexecuted and very important portions of the contracts might as well have been placed in the moon. Nevertheless, the hour finds its man, or rather, as in this case, two men, who indeed deserve well of their country. They were George Binney and William Waring.

George Binney, after a distinguished academic career, had heard the old call of the North and had gained a vast amount of Arctic experience with scientific expeditions and the Hudson's Bay Company. In the spring of 1940 he was representing the British Iron and Steel Corporation in Norway. His later colleague, William Waring, was a chartered accountant by profession, who had accepted an appointment with the British Legation in Oslo. Both men reached Sweden after many hairbreadth escapes from their Nazi pursuers, and His Majesty's Minister in Stockholm was

glad to avail himself of their services in his Commercial Secretariat.

Throughout the tense summer of 1940, when we had our backs well and truly to the wall, Binney and Waring worked like twin Trojans at the task of collecting ships and men for the transport of precious supplies to sorely-tried and embattled Britain. The Nazis, needless to say, were well aware of the importance of Swedish products to us and had concentrated large forces of aircraft, sea patrols, and at least one large cruiser in the Skagerrak. The chances of the celluloid dog chasing the asbestos cat through Hell seemed rosy in comparison with those of the prospective blockade-runners. Still, the effort had to be made, and preparations went on apace.

By the middle of December five ships had been collected and manned in Gothenburg. These vessels, all Norwegian-owned, had been lying immobilised since the invasion of their parent country and were watched, it is hardly necessary to add, by the legion of spies which infested Sweden in the heyday of the Reich. Their names are worthy of note—*Taurus*, *Taishan*, *Elizabeth Baake*, *John Baake*, *Ranja*. All but the last, a tanker, were new motor-ships of roughly equal size. With relatively fast speed and a total tonnage of fifty-odd thousand tons, the fleet made a useful and homogeneous task-force for the desperate work ahead. The crews were less well matched, so far as nationality was concerned. Quite a number were British seamen who, after various vicissitudes, had arrived in Sweden. Many others were Norwegian, and, surely to their lasting honour, some Swedish sailors volunteered to help to sail the ships. At length all was ready, and, loaded with 25,000 tons of priceless cargo, the little armada put to sea in the middle of January 1941. In accordance with prearranged plans the ships sailed at intervals, and presumably the aforementioned German spies had something to write home about.

Thirty miles to the north of Gothenburg, opposite the little town of Lysekil, the fleet made its rendezvous. In the darkness of a midwinter night the dash for the North Sea and Britain was started, and imagination kindles to the picture of those ships, under the personal leadership of Binney, heading into the west through perilous waters. That they were all successful is the measure of their luck and skill.

Two days later every one of those ships

SKAGERRAK STORY

reached port. Only one life, that of the Chief Officer of the tanker *Ranja*, had been lost, when a shadowing Heinkel dived on his ship. Seemingly the Nazi pilot had been unable to make up his mind beforehand, otherwise it is inconceivable that he would not have called up reinforcements. Perhaps he was uncertain of the nationality of those five shapes below him until he saw them met by a British naval escort off the Norwegian coast. Be that as it may, the whole operation was a brilliant success, and a much-needed tonic was administered to our anxious leaders when the ships sailed home.

Fancy boggles at the reaction of Hitler when he heard that five sizeable vessels had escaped the closely woven meshes of his Baltic blockade. No doubt he gave an exhibition of fury deeply interesting to his experienced staff and entourage. It is now quite certain that Admiral Raeder had a very unpleasant interview with the Führer, and it is also certain that German naval precautions were immediately tightened up. As a further demonstration of the Nazi displeasure, the Swedish Foreign Office had to listen with frigid politeness to yet another plaint from the German Minister in Stockholm. But the fact remained. The ships got home. So far so good.

BINNEY AND WARING were not men to rest on their laurels when there were more to be gathered, and to a repeat performance of their outstanding achievement they bent their abounding energies.

Early in January 1942 ten more vessels, again of Norwegian registry, were assembled in Gothenburg harbour. They ranged in tonnage from the respectable figure of 17,000 tons to the pigmy one of 300 tons. This time, however, the enemy were not to be caught napping. As a preliminary move, the German Consul-General instituted legal proceedings to prevent the ships sailing and won the day in the local courts. But H.M. Minister in Stockholm, like Paul Jones, had not then begun to fight and he carried the case to the highest tribunal in Sweden, which gave its decision in favour of us. So, to the disgust of the Germans, the joy of the legal profession—to which precedents, not to speak of fees, are fun—and with the polite impartiality of the Swedes, the ships were authorised to proceed at once.

That was in March 1942. Once again, so far so good. But the judgments of legal luminaries, however scintillating, do not carry invaluable cargoes through the teeth of a vicious blockade, and the practical aspects of the problem remained unsolved. Under very great pressure from the Germans, the Swedes had willy-nilly added to the difficulties, for they forbade that the ships should assemble off Lysekil, a prohibited area, and insisted that they should sail direct to Britain from Gothenburg.

The enemy was quick to take advantage of this obvious opportunity, and reports of strong concentrations in the Skagerrak reached friendly ears. Nevertheless, the decision had to be taken, and taken quickly, and in the small hours of 31st March the ten ships put to sea. A cloudy moon with thickening fog was at first in their favour, but unhappily for the purpose in hand the weather improved. Soon after Swedish waters had been left astern, Raeder's forces struck. Ship after ship was attacked and, of the ten, only the great tanker *B.P. Newton* of 17,000 tons and the little *M.T. Lind* of 300 tons arrived safely. Two others managed to regain the sanctuary of Gothenburg, but six good ships were either sunk or scuttled themselves, in accordance with previous orders, to prevent their priceless cargoes falling into enemy hands. Bad luck had, as it proved, triumphed over good management. But that is life, and especially war, all over.

'The Press,' said Mr Pickwick to Mr Pott on an historical occasion, 'is a mighty engine.' So it is, but very regrettable results may follow from its perfectly legitimate workings. Soon after the two survivors of the foray had arrived in British ports the national papers quite rightly published thrilling accounts of their adventures. Unfortunately, reference was made to the ships firing on the attackers and at once official Sweden was agog. 'Where,' high quarters inquired, 'had peaceful merchant-ships obtained the armament for such action?' They were officially not pleased to learn that parts of machine-guns had been carried aboard the vessels while they lay in Gothenburg, concealed in the innocuous luggage of an innocent British business man.

There were repercussions, of course. The two ships which had run back were firmly interned in Gothenburg and, when the legal and diplomatic battle was over, it was too

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late for them to play a part. The only consolation on our side was that the Nazis had to tie up considerable forces to watch them—forces which would have been of great value in other theatres.

AFTER this incident it became clear to H.M. Government that new methods were necessary. Aided by George (now Sir George) Binney, three 'pocket freighters' were rapidly built in British shipyards and two other suitable craft converted at the same time. These little vessels closely resembled motor torpedo-boats in size and appearance, but internal modifications gave them a very considerable cargo capacity. It was thought that these ships, powered by high-speed Diesels and possessing great manoeuvrability, would have more than a fighting chance of eluding heavier metal, and, happily to relate, this surmise was triumphantly justified by experience.

The lovely and appropriate names of the ships stand high in the golden annals of British sea warfare—*Hopewell* (Captain D. Stokes), *Master Standfast* (Captain C. Holdsworth), *Gay Corsair* (Captain R. Tanton), *Gay Viking* (Captain H. Whitfield), and *Nonsuch* (Captain H. Jackson). Most of the captains were officers in the great Ellerman's Wilson line and, as such, had expert knowledge of the Baltic and its approaches. All were on the sunny side of forty, and their crews were even more youthful. Inevitably, the engineer officers were Scots almost to a man, but Hull supplied most of the ships' companies. Each vessel was lightly armed with A.A. guns, which were manned by two stewards apiece.

In the early autumn of 1943 the little ships were all set for action. Four hundred miles away, ensconced in the tiny town of Lysekil, the indefatigable Waring and his team of devoted assistants, including his wife, had organised the shore end of the venture to the last item. Cargoes were ready, stores were ready, and, even more important, the Swedes were ready. On 7th November the *Gay Viking* throbbed into port and the entire population of five-thousand-odd turned out to see her sweep proudly in. It is on record that the German Consul was among those present—but it is not known whether he

joined in the round after round of applause which a normally undemonstrative people gave to the visitors. Two days later, loaded to capacity, *Gay Viking* left, and in due course arrived safely in an English east coast port.

That was the beginning of the ferry service. Commanded by experts and manned by devoted officers and men, the innumerable voyages were accomplished almost without incident. So much so, in fact, that a member of one of the crews complained bitterly to me that he felt he was not pulling his weight in the common struggle! However, when one thinks of what the North Sea can do even to large ships, and when one adds that to the incessant mental and physical strain of four hundred miles of perilous passage every few days, it seems that my friend was hard to please. Accommodation was frightfully cramped and lack of galleys made tinned food, even when it was self-heating, an unpleasant necessity. But in the little cabin of the Master of each ship was a bright splash of colour. A portrait of Sir Francis Drake looked down sternly, yet—and who can doubt it—approvingly on the exploits of his lineal descendants.

One tragedy happened when Captain Holdsworth of the *Master Standfast* met a powerful enemy patrol. His ship was sunk and a gallant officer and many of his men lost their lives.

Naturally, the enemy reacted strongly to the 'trade,' though all to no purpose. Threats having failed to impress the Swedish authorities, every legal trick and diplomatic gambit was brought into play. Still, the Nazis' efforts availed them nothing, and I like to think that a maritime nation like the Swedes showed little eagerness to hinder the daring and gallantry of British seamen. Be that as it may, as the tremendous years rolled on, Herr Minister Thomsen had other things to think about in his imposing Legation in Hovslagargatan. It is also pleasant to record that Binney, Waring, the captains of the little ships, and others all received high recognition from their grateful and indebted country.

A good story, although sketchily told, I fear. Yet it has a moral for these our days of difficulty. Our race is never so dangerous as when all seems lost. That it will be so in the future no one can doubt.



That Joker

ALOYSIUS GREENGLITE

THE cheap alarm-clock broke out into a jangling rattle. Huddled on the bed, I had been lying awake for some time, waiting to hear the sound, but now, when the insistent clamour denoted that it was time to rise, an uncontrollable desire to sleep pinned me down.

A loud knocking at the door of the shabby room and a voice: 'Now then, thought you were getting a job this morning.'

'All right,' I answered, rousing myself. 'Don't worry. I'll be there in good time, never fear.'

'Don't forget what I told you,' continued the shrill voice. 'No money this week, and out you get,' and the slip-slop of the landlady's feet resounded down the stairs.

I had not slept well, worrying all the night as to whether I would get the job I had in view. It was only a faint hope, I knew, but it had been sufficient to put off the landlady's bickerings the night before.

For weeks I had tramped for miles without finding an opening. Months before, my business had collapsed, my gratuity had evaporated. Hours had been wasted replying to advertisements, days lost on abortive interviews. My conditions had gradually deterio-

rated and I was living in what was little better than a slum. I was at the end of my tether.

I appeared to have no qualifications for most of the jobs vacant. My 'education' was of little advantage. My proud parents' sacrifices and efforts of years ago to make me into a 'gentleman' were proving a decided drawback and a hindrance.

At the Labour Exchange, where I was at last forced to apply for any sort of work, the clerk could do nothing for me, except to advise me to take on *anything* I could get. 'Why not try building,' he had said. He regretted that he could not give me a note to a building firm, as all requisitions on the file were for experienced building workers only. But there might be a chance, perhaps, if I applied on a building site for a labourer's job. 'Try it,' he had urged. 'You look hefty enough. Why, look at your hands. Just the sort for gripping a pneumatic-drill. Strangler's hands,' he laughed.

I did not quite see the point of the supposed joke and hesitated to tell him that possibly my strangler's hands were the result of a couple of years in a prisoner of war camp. But I was determined not to whine or indulge in self-pity, and departed to take his advice. I thought that, after all, any sort of a job would

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get me out of my present filthy surroundings and possibly bridge over the time till something better would turn up. What a Micawber I was becoming. I knew, though, that, if something did *not* turn up, the next step would be a doss-house, and then possibly the Embankment, and later perhaps the wrong side of it.

FOR weeks I haunted many building sites. On most jobs I found a notice to the effect that all applications for employment must be made through the Labour Exchange, but on one particular site I had noticed, day after day, a rather unusual chalked-up scrawl:

WANTED
Bricklayers
Carpenters
No Labourers

I wondered why it should stress *No Labourers*. I could only surmise that they had been so pestered by men like myself that they had to word their notices like this to keep off unwanted applicants. I knew that real builders' labourers—men who had spent years on building work and knew all the ropes—were scarce. Labourers of my sort, I thought grimly, must be ten a penny.

However, there seemed to be some slight hope here. Surely they would eventually need *some* labourers. All tradesmen must have labourers and, if they got the tradesmen they required, they might take on more labourers, even if unskilled. But for weeks the notice had remained the same.

In each of my frequent visits to the site I had carefully watched operations, particularly of the labourers employed there. I tried to picture myself balancing a wheelbarrow full of mortar on a narrow plank, like a tight-rope walker; carrying a hod full of bricks up a 20-foot ladder; digging deep trenches. I got to admire those men and their skill, and I hoped that if I got the chance I could do as well, but secretly I doubted it. I had never done anything more laborious than pushing a pen.

ONE evening, after a long day's search, I was wearily making my way back to my lodgings, and had to pass this site, when it was growing dark, and all work had ceased for the day. There was no one about except

one man, whom in the dusk I took to be the night-watchman. He was standing by the notice-board, and as I approached to read the board again as a matter of routine he turned on his heel and disappeared round the corner of a partly-constructed house. In the half-light I could just make out the wording, and, to my great surprise, it was different from what it had been that morning. There was a slight alteration. Now the notice read:

WANTED
Bricklayers
Carpenters
Labourers

I stood and stared at the notice for some moments. I could not believe my eyes. So they wanted labourers. At last there appeared to be an opening.

I returned to my lodgings walking on air, and the thought of the great possibilities in store kept me awake most of the night, with intermittent dreams of crawling round roofs and chimney-pots, singing and laughing my head off.

LONG before work commenced I was outside the foreman's office. But I was not the first. There were others before me, and as starting-time drew near a small group of hungry-looking men of all types gathered round. They stood silently appraising each other and then stared at the notice-board as if challenging its message.

I glanced at each one in turn, weighing them up carefully. In spite of all my privations, I still retained a fairly good physique and should, I thought, stand as good a chance as any if it was a matter of selection. There were my hands too—my 'strangler's hands' as the Labour Exchange clerk had laughingly called them. They certainly looked workmanlike and apparently capable of heavy work. I felt pleased with myself and hummed a tune.

There was a stir on the edge of the group. A brawny, masterful type of man, ignoring the assembly, pushed his way through and, producing keys, opened the door of the office. The foreman evidently. He went in and closed the door. We pressed forward and formed a semicircle round it. I got a place in front and, squaring my shoulders and trying to look the part, held my hands conspicuously in front of me, and waited.

After what seemed an eternity the door

THAT JOKER

opened. The foreman stood on the steps and looked at us with what appeared to be contempt. 'What do you fellows want?' he roared.

'Work, of course,' answered one on the outside of the semicircle.

'Any of you bricklayers?' he sneered.

No answer.

'Any of you bricklayers, carpenters, plumbers, plasterers, electricians, tilers, slaters, painters, glaziers, or paperhangers?' he reeled off in derision.

No answer.

'I thought not,' he bellowed. 'Can't you read English? Look at the board. We don't want any bloody labourers. Clear to 'ell out of it!' He closed the door noisily and disappeared inside.

The disappointment made me feel sick. My hands trembled, itching for something to grasp and squeeze. I stood not knowing what to do or say. Some of the group kicked at the door. A number blasphemed loudly. Others turned away, sadly, like beaten curs, as if used to this treatment.

Suddenly the door reopened and the foreman came out again. He had a whistle in his hand. 'Do you want me to send for the police and have you removed?' he shouted, and then blew a blast on the whistle, for the day's work to begin.

Several of those who had turned away rushed back and a fierce shouting and gesticulating began. I pulled the foreman by the coat to the chalked notice and demanded an explanation. He rubbed his eyes. 'What the 'ell!' he bawled. 'This is the *third* time. I told the boss it would lead to trouble—that it ought to have been *painted* up. It's that bloody joker again!'

'Joker,' I fumed. 'What do you mean—joker?'

'Can't you see,' he replied, shaking me off, 'some blighter has rubbed out the word "*No*"!'

WELL, that's my story. Comic, is it not? I would have liked to carry it a little further, but unfortunately it would not be safe. It might be my last story if I did.

Why? You see, a few days afterwards the body of a man was found, in the early morning, lying by the notice-board. In one hand he clutched a dirty rag, and in the other a piece of chalk. He had been strangled.

There was no clue that could lead to the arrest of the murderer, nor anything that denoted the victim's identity. He *may* have been 'That bloody joker' . . . But I wouldn't know.

Refuge

*Mostly, oh mostly now, I remember you
Not in the lovely pastures, limpid with sunlight,
Or the green woodland, or when the shallow moonlight
Washes over the land as tides over green shores,
But in the darkened and the lonely places,
When waiting for trains, on cold and echoing platforms,
Forever watching the receding lights,
Like farewells without end, the desolate sound
Of indrawn steam, the fret of strangers' footsteps
Up endless draughty corridors, like steps
That echo in dreams the beating of the heart,
Until you seem beside me, like a fire,
The thought of fire, of warmth, of candle's peace
From the rough, hustling evening, lashed with rain.
For you are the comfort in the storm, the solace,
The inward heart of all I love and cherish,
That, thinking of you in this, the stolen moment,
The incongruous moment, all in the desolate places
Glow and is lovely, as in the shafts of sun
Dust, and the motes of air, are bright as stars.*

MARGARET STANLEY-WRENCH.

Twice-Told Tales

X.—The Englishman Abroad

[From *Chambers's Edinburgh Journal* of October 1851]

THE physical distinction between the continent and England which most strikes a traveller is with respect to the atmosphere. A native of our cloudy island feels exhilarated by the pure, dry, blue air which envelops him abroad. There is a lustrous brightness over even city objects which one never sees at home. We feel the air to be a fine medium in which we are bathing—a novel and most pleasing sensation. It is distressing in central Europe to observe the extent to which, in towns, the natives persist in drugging their beautiful atmosphere with tobacco-smoke. The German seems as if he would never willingly part with his pipe or cigar. He indulges his propensity without delicacy towards women or strangers—at all hours and seasons: we have seen him keep the pipe in his mouth in situations of difficulty, or while engaged in work, when an Englishman would have deemed it necessary to be free of all encumbrances whatever. While conversing with him you feel his breath like the air from an old disused chimney, as if his windpipe were cased with ancient soot all the way down. Throughout Austria you can enter no public carriage where you are safe from the persecution of tobacco smoke, nor can you anywhere secure an exemption from it in favour of any ladies in your charge. Political feeling has lately effected in Lombardy a reform which probably refinement could never have accomplished—the people having generally abandoned the use of tobacco out of hatred for the government, which derives a revenue from the article. Would that some similar gust of sentiment would banish the nuisance from other dominions of the House of Hapsburg! One quickly perceives how smoking accords with the deliberate habits of the German. Being never in a hurry, he has time to smoke; and being devoted to smoking, he can do nothing expeditiously. It is a prominent feature of continental life all through the season of travel, that multi-

tudes of well-dressed men are continually seen sitting in the open air in front of the establishments called *cafés*. They generally content themselves with some very innocent liquor—coffee or *eau sucré*; and thus provided, with a newspaper, and a few neighbours to converse with, they will sit for hours, as if they had no business to call them elsewhere. We at one time felt pleased with the sight of so many people making themselves happy with such simple things; but we have latterly begun to think the custom not very creditable. To be contented with an amusement so puerile, so insipid, and so *slow*, marks, we should say, some default in the popular mind. The men who spend much of their time in this way must to some extent neglect their affairs. They can have little time besides for improving their minds by study. They cannot be a progressive people. There is a vicious circle in politics. If a people has no share in ruling, its mental calibre becomes or remains contracted; and while its mental calibre is contracted, it cannot be fit for any share in the government. To this total inaptitude and inexperience in which the continental nations have hitherto been kept by their governments—as if it were necessary to treat men in all situations and throughout all time as children—must mainly be attributed the sad failure of the democratic movement all over Europe in 1848-49, by which, to all appearance, improvement has been put back for a generation.

One general remark that arises in our minds from a pretty long continental excursion is, that though there is much to be pleased with in what one eats and drinks and hears and sees and feels when abroad, there is yet a felicity in the condition of England which may well make an Englishman content with his own country. We have a kindly regard for all neighbouring countries and people, and are no bigots on any point; but commend us after all to the tight little island!



Making the Garden Pay

THERE are very many gardens which during the last two or three years I have had the pleasure of converting into market-gardens so as to enable the owners to go on living in their homes. After all, it is a very expensive matter in these days of high taxation to pay a number of gardeners just to keep going the normal pre-war pleasure-garden. It is extremely hard luck on the gardeners if they have to be sacked, and it does no good to the land if the weeds be allowed to grow and the whole place permitted to go to rack and ruin. The answer, of course, is to make the land pay the gardeners' wages, and if possible to make a profit in addition. Believe me, this is no dream. I have seen it happen again and again—in fact, one of my main jobs now is advising garden-owners all over the country on this matter.

Now there are two methods of attack. In the case of the large garden it is a question of getting the place 'recognised' and then appointing a commercial foreman who runs the whole thing on a businesslike footing. Many of the paths have to go, the walled-in garden may have to be cleared of its pergola or central fruit-trees, and the greenhouses may have to be stripped of their peaches and vines, non-commercial to-day. Mechanical cultivators are bought, but, of course, there is the usual tax-allowance for them on a four-year basis, and if the land is really and truly converted to commercial ends it is possible during the first year or two to claim against the normal taxation, and any good accountant can prepare the necessary accounts.

The second method is the one that is often adopted in the very much smaller gardens. In this instance the normal taxes are paid and then a certain amount of the land is devoted to intensive cropping and the produce sold, the money going to help pay for the wages. Perhaps it should be made clear, however, that with large gardens it is only necessary to devote a fair portion of the land to commercial purposes and it is always possible to leave a nice garden around the dwelling-house. For some reason or other such schemes have frightened many householders because they dislike the idea of keeping accounts, but

in reality the whole thing is easy to carry out.

It is not that the schemes are in some special way suited to the south. I have a map on my office wall with little flags in it showing the gardens I have been responsible for converting and they extend from Stirling in Scotland right the way down to Paignton in Devon and from Colwyn Bay on the west right the way through to Great Yarmouth on the east. Of course, the great thing is to treat each garden on its own peculiar merits. Near Liverpool, for example, where the soil is very sandy, it was possible to lay out an extensive asparagus-farm and make this very profitable. On the east coast, because of the nearness of a freezing-factory, we found raspberries to be ideal. Down in the south, in one garden we have done wonderfully well with flowering shrubs. In another, it has been a question of using continuous cloches intensively and producing three good crops a year from each strip of miniature greenhouses, and thus making an acre produce up to £1000. This sounds fantastic, but it was quite true a year or so back. It is a matter of examining the soil carefully and of knowing what crop will suit it. One must study the local markets to discover the demand, and it is surprising what a good foreman can do with a small acreage.

There is an answer to every problem, though it is only by a personal visit that some can be solved. I was advising recently in a garden in Essex where they do remarkably well with very early tulips and early gladioli, and they make certain that they get their pyrethrum and scabious early also by covering the beds with Dutch-lights raised on a structure 4 feet high. Early peas produced under Ganwicks made 2s. a pound, and they were in constant demand. Lettuces in April and May made up to 8d. each, and it is easy to produce these with cloches. So it is not all theory!

I shall be glad to help readers with their gardening problems. Write to me through the Editor, kindly enclosing a stamped addressed envelope for the reply.

W. E. SHEWELL-COOPER, M.B.E., N.D.H.

Science at Your Service

OTHER USES FOR GLASS?

TWO recent American developments, both at present in the pilot or experimental stage, may widen the already versatile uses of glass. One of these is the production of safety-razor blades from glass instead of from steel. It is said that a satisfactory cutting-edge is produced by a combined treatment of etching with hydrofluoric acid and grinding. The blades are made from blanks similar in size and glass quality to microscope slides. The inventors claim that the keenness of the edge and its durability is actually superior to that obtained in steel blades.

The second development is the use of heat-resistant glass in place of the metal hot-plates on electric-cookers. The glass hot-plate is, in fact, the top surface of an infra-red lamp. The type of high-silica-content glass used enables lead to be melted on the flat upper surface of the bulb; ice, on the other hand, can equally safely be vaporised from this new kind of hot-plate.

Technical progress of this nature should not be looked upon as mere novelty. Glass is virtually an inexhaustible material, made from substances possessed by the world in abundance. Our sources of metals are far more limited and the steady rise in world population and industrial activity is constantly increasing the strain upon these basic resources.

GAS FROM WASTE COAL

Experimental work at the Fuel Research Station is being directed to the problem of using small-sized fuels such as the waste coal-fines from coal-washing for industrial-gas production. What is known as water-gas—a mixture of carbon monoxide and hydrogen, commonly combined by most gasworks with the gas obtained from coal carbonisation—is being produced from the waste-fines, or slurry. At present, water-gas is usually made from high-grade coke and steam.

Previous efforts to gasify coal-slurry wastes have been unsuccessful because the bed of finely-divided fuel packs tightly under its own weight and prevents the passage of steam

through it. The new process is an example of modern fluid-bed technique. Steam is blown in under pressure from below the slurry; the fine coal-dust is kept in suspension, thus enabling the steam to react with the particles.

Not only could this process, if successful, lower an important item in gas-production costs, but the use of lower-grade fuels could also release a large tonnage of high-grade coke for domestic or industrial use.

AN IMPROVED

OFFICE-INTERCOMMUNICATION SYSTEM

The principle of the wartime walkie-talkie instrument has been used to produce a new type of internal-communication system. The simplest form comprises two small panel units, each of which jointly receives speech from, or relays speech to, the other; the wired connection between the two units can be any distance up to a maximum of 500 feet. The appliance is operated from ordinary torch-batteries and a normal-sized battery should give four to six months' power-supply.

A switch is pressed when the unit is talked into and released when receiving a message from the other unit. Since the normal position of the switch is in the released position, no preliminary ringing is required; the switch depression at the talking end automatically converts the unit at the other and reception end into a desk loudspeaker. There is no separate hand-instrument that requires to be picked up as with the normal internal-telephone system.

For communication between a business man and his secretary, or between a doctor or dentist and his receptionist, this easily set up and operated instrument should save both time and effort. For small offices it can be converted into a four-unit system by incorporating a four-way switch. The units are portable and need not be permanently used between two or four fixed positions. The cost of the two-unit appliance is remarkably low and the manufacturers give a one-year guarantee for mechanical efficiency.

SCIENCE AT YOUR SERVICE

LIME-SULPHUR CENTENARY

If Festival year has produced a stream of 1951 centenaries, one that has so far been surprisingly little mentioned is that of lime-sulphur, the agricultural and horticultural spray, first discovered by the chief gardener of the Palace of Versailles in 1851. The complex liquid produced by boiling lime and sulphur together was found to cure the devastating mildew then increasingly attacking the grapes of France. Lime-sulphur thus became one of the first chemical fungicides. Later it was also to become an insecticide. Towards the end of the 19th century a scab disease caused by skin mites threatened to wipe out the prosperous sheep industries of Australia and New Zealand. Lime-sulphur was found to kill the mites and prevent the disease. This knowledge then passed to America, where the same trouble with sheep was being experienced. By the time lime-sulphur was fifty years old, its use as a special fungicide for fruit had declined very considerably. But a sheep-farmer in America who also grew peaches tried out his lime-sulphur sheep-dip as a spray for preventing damage by scale insects. The chance experiment was successful. Later, in England, lime-sulphur was found to be an excellent fungicide for apple-scab. Early in this century, therefore, the use of lime-sulphur as a fruit-spray, for both fungal- and insect-pest control, revived and rapidly expanded.

This versatile and veteran product has reached its hundredth year somewhat uncertainly. As a sheep-dip it is no longer the most effective spray; one of the modern synthetic insecticides, the British Gammexane, has proved superior. For fruit, however, lime-sulphur is still much used, but the sulphur shortage now facing the world is forcing growers to seek alternative substances. Other sulphur-containing sprays, such as dispersed sulphur, are more effective per pound of sulphur used; in the process of boiling lime and sulphur together, despite modern improvements, too much of the sulphur is lost. Even if lime-sulphur gradually disappears from now onwards, it has had a proud century. It saved the French grape industry; it undoubtedly prevented complete disaster for the growing sheep industries of Australasia; then in the 20th century it became a standard fungicide and miticide in the fruit industry. Few chemical products have served so widely and notably in food production.

AN ELECTRIC-COOKER TAP

One of the problems of the electric-cooker is lack of flexible control. By comparison, the gas-cooker tap offers a much easier and infinitely graduated range of heat supply. This lack of flexible control is particularly a disadvantage for the hot-plate units of an electric-cooker; also, power consumption is often much greater than it need be because the heat supply cannot be reduced sufficiently when mere simmering is required.

A well-known electrical-equipment company manufactures a flexible hot-plate tap offering a far more flexible control than the usual three-heat or four-heat switches. The principle underlying its operation is the inclusion in the circuit of a snap-action switch that cuts out the power supply at short and timed intervals. Thus, when set for simmering heat, the internal switch cuts off the power once a minute; and the proportion of time in each minute during which the current is on can be varied by turning the main knob of the tap. Further, the circuit control automatically compensates for voltage variations—a not unimportant consideration to-day!—so long as these variations do not exceed 15 per cent.

The switch occupies the same space on a cooker as the usual type of hot-plate switch. Already, more than one million are in daily use. The effective life is claimed to be from five to seven years. The finish is in white plastic moulding, with black scale markings to guide setting; the switching mechanism is housed in bakelite and is specially protected against temperature variations caused through the actual usage of the cooker.

SALT AS A FERTILISER

There is increasing interest in the use of salt as a fertiliser. It has long been used for the mangold crop, but until the end of the 17th century salt was widely employed for many English farm-crops. Then an excessively heavy war-tax was imposed upon salt and for more than a century and a quarter its price was far too high for agricultural economics to stand. The tax was eventually repealed in 1823, but the revival in the fertiliser use of salt that followed was not as powerful as its old records of success might have suggested. One reason for this was that the then infant subject of plant nutrition excluded the two elements in salt—sodium and chlorine—from the list of essential plant-feeding elements. Nevertheless, during the

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late war it was found that salt was a dramatically effective fertiliser for sugar-beet—5 hundredweights of salt per acre produced as much as 5 extra hundredweights of sugar per acre. Although not essential for plant-life, sodium appears to be an element that is required in the diet of certain plants if maximum yields are to be grown.

Britain is richly endowed with salt desposits. Salt is far cheaper than most fertiliser materials to-day. It was recently stated in the Ministry of Agriculture Advisory Service's Journal that much more research is needed on the fertiliser use of salt. There is an abundance of old evidence and some modern evidence to show that salt-dressings are beneficial for a number of crops besides the already well-known cases of sugar-beet and mangolds—for example, for cabbage, kale, pasture grass, celery, and for wheat and barley, particularly when these cereal crops are grown upon light soils. One old-established British salt-producing company has developed an agricultural salt-spreading service enabling farmers to buy salt in bulk and have it spread on their land by contractors. This company is also ready to advise farmers as to the crops most likely to benefit from salt-dressings, and to allow them to make initial tests with salt on limited areas of their land at a low cost.

A NEW ELECTROPLATE ALLOY

The increasingly serious shortage of nickel and chromium is urgently calling for new plating materials. A recently-announced British research development could hardly be more timely and it should ease considerably the difficulties of car and cycle manufacturers and, indeed, of most makers of decorated hardware goods. The new alloy is made of tin and nickel, but a much smaller use of nickel is involved than in ordinary nickel-plating. Whereas chromium-plating has a cold, bluish tint, this new plating alloy has a soft, pinkish tint. The surface produced is hard and resistant to scratches and scarcely any polishing is needed.

The alloy itself is not 'produced' before it is deposited upon the plating surface. The task of the research workers was to find the correct plating-solution conditions under which tin and nickel would flow with the current and deposit themselves equally (one atom of tin and one atom of nickel) upon the article being plated. So the alloy is formed during the actual deposition of the plating layer.

As the tin atom is twice as heavy as the nickel atom, an atom-for-atom mixture contains twice as much tin by weight as it contains nickel. In fact, this new electroplating alloy has never previously been made by normal metal-mixing methods. It may well lead to many new plating developments, for most plating processes in the past have been based upon the deposition of single metals rather than of mixtures of metals.

EMERGENCY LIGHTING UNIT

A new portable battery-operated lighting unit which automatically provides alternative light should the normal mains-supply be interrupted has been developed by one of the leading British manufacturers of electrical equipment. A valuable feature of this unit is that the battery is kept charged from the A.C. mains by a built-in charger that includes a selenium rectifier. Immediately the current fails, the emergency light comes on; immediately it starts again, the emergency light goes out and the unit resumes battery charging. Should there be a further mains interruption soon after recharging has commenced, the battery, even if it had been completely discharged previously, could still operate a lighting-point again after ten to fifteen hours' recharging, though forty hours' recharging is required for full capacity to be regained. The unit operates two 6-volt lamps, which can be sited remotely, or one may be sited on the unit itself. There is no need, of course, to use more than one lamp if a single emergency light would be sufficient; the period during which the battery can provide alternative illumination is obviously reduced if two lighting-points have to be fed. Units are produced for operation with 100-120 and 200-250 volt A.C. mains-supply.

TO CORRESPONDENTS who wish fuller information regarding new inventions, publications, etc. mentioned here, addresses will be furnished, when possible, if (and only if) a stamped addressed envelope or postcard for a reply be sent to the Editor, *Chambers's Journal*, 11 Thistle Street, Edinburgh. To avoid delays, requests of this kind from correspondents abroad will be forwarded to the manufacturer or agent if stamps, postal orders, or imperial or international reply coupons are enclosed for the purpose. The issue of the *Journal* and the heading of the paragraph in which the object of inquiry is described should be given in order to facilitate reference.

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*"An elegant sufficiency,
Content"*

JAMES THOMSON

Sufficient unto itself is the contentment you will find in smoking an EMBASSY CIGAR. So we will say nothing about the care we take, and have taken for 70 years, in selecting the best leaf. We will not even mention the mild and subtle Havana flavour. Smoke your EMBASSY CIGAR and enjoy it in peace.

"Embassy" CIGARS

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ZYTOCIN is pure ACTIVATED GARLIC
in **Odourless** tablets

See it in your Health Food Store in this display pack

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WHAT IS ZYTOCIN? ZYTOCIN tablets contain pure, unadulterated Garlic, activated by the ZYTOCIN process—Garlic in its most potent, most palatable form. The ZYTOCIN process enriches the natural Garlic, giving it greater health value, making it more digestible and at the same time making it **ODOURLESS** so that it leaves no unpleasant after-effects.

ZYTOCIN FOR CATARRH. ZYTOCIN activated Garlic Tablets are recommended specifically for catarrh, nasal and bronchial asthma and bronchitis. The non-suppressive aid which garlic gives in such cases is enriched and extended in ZYTOCIN Tablets, so that a general TONIC effect is felt, and the fatigue usually accompanying such infections is dispelled.

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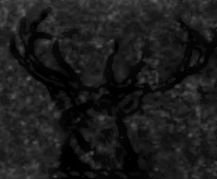
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